UNDERSTANDING CONTEMPORARY STRATEGY

Thomas M. Kane and David J. Lonsdale

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Understanding Contemporary Strategy

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Understanding Contemporary Strategy provides an accessible and comprehensive introduction to the theory and practice of modern strategy.

Covering all the main issues in the field, the book explores the major themes through a combination of classical and modern strategic theory, history and current practice. The book is split into three main sections:

- definition and context: including discussion of the human, technological, intelligence, ethical and grand-strategic dimensions;
- strategy in the geographic environments: land, sea, air and space;
- contemporary strategic challenges: terrorism, insurgency and nuclear strategy.

Each chapter presents the reader with a succinct summary of the topic, but also provides a challenging analysis of current issues, supporting students with pedagogical features such as suggested further reading, boxed case studies and study questions.

This book will be essential reading for upper-level students of strategic studies, war studies, military history and international security.

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Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2012
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada
by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data
Kane, Thomas M.
Understanding contemporary strategy / Thomas M. Kane & David J. Lonsdale.
p. cm.
Includes bibliographical references and index.
1. Strategy. 2. Military planning. 3. Military policy. I. Lonsdale, David J. II. Title.
U162.K268 2011
355.4–dc22
2011014980

ISBN13: 978-0-415-46166-5 (hbk)
ISBN13: 978-0-415-46167-2 (pbk)
ISBN13: 978-0-203-80151-2 (ebk)

Typeset in Times by
FiSH Books, Enfield

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This book is dedicated to Colin S. Gray, a great strategic thinker, mentor and friend

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Acknowledgements

A book such as this is many years in the making. Developing an understanding of the many subjects occurs through a process of research, teaching and discussion with colleagues and students. As a result, there are many people to thank. Most importantly, we would like to thank Colin S. Gray, who gave us a wonderful grounding in strategic studies during his PhD programme in the 1990s. It is a sign of his genuine commitment to the subject and his former students that Professor Gray continues actively to inspire and support us to this day. We have been fortunate to work with outstanding colleagues in various departments throughout our careers. In particular, we would like to show our appreciation to colleagues past and present at the Joint Services Command and Staff College, Reading University and the University of Hull. At the latter, Justin Morris deserves special praise for his supportive work in the role of Head of Department. Thanks also to Professor Paul Robinson for inspiration and suggestions. We would also like to thank the many students who have shared our passion for strategy over the years. Engaging with them on the various topics covered in this book enabled us to develop and hone our ideas considerably. This book would not have happened without the patience and wisdom of Andrew Humphrys at Routledge, whom it has been a pleasure to work with over a number of years. Finally, we would like to thank our families and friends. They continue to demonstrate overwhelming support for academic projects that too often dominate periods of our lives.

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Introduction

> War is a matter of vital importance to the state; the province of life or death; the road to survival or ruin. It is mandatory that it be thoroughly studied.[1]

These words, written approximately 2500 years ago by the Chinese general and theorist Sun Tzu, provide a simple but convincing impetus for academic study on the subject of war. Despite this persuasive call to intellectual arms, the study of war in its broader context remained undeveloped for much of history. Until the second half of the twentieth century the study of war had been largely restricted to the military. This, with a few notable exceptions (Clausewitz being the prime example), understandably led to a focus on tactical and operational issues and the development of principles for success. Military scholars and practitioners tended to focus on getting the job done, rather than ruminating over war in its broader context. Thus, in the realm of military practice it is rare to find serious study on the nature of war and its relationship to the other aspects of human sociopolitical activities.

This deficiency has been rectified, to some degree, with the new academic discipline of strategic studies. In response to a call from the theorist Bernard Brodie, intellectual engagement with the subject of war has developed since the Second World War. This current volume seeks to further our understanding of war both in theory and practice. Importantly, the book addresses not only the practice of strategy in all its forms, but also discusses the context within which this occurs. In order fully to comprehend how strategy functions, it is essential to understand the human, political, social, ethical and cultural contexts. Importantly, although strategic studies is an academic discipline, it has not become detached from military practice. There continues to be recognition that strategy is a practical subject with substantial consequences in the real world. As Brodie noted: 'Above all, strategic theory is a theory for action.'[2] That being the case, it is hoped that strategic studies has subjected war to rigorous intellectual analysis, but at the same time recognises the limits of theory in the practical and dangerous world of war. This current volume very much seeks to hold true to that tradition.

War and strategy

War and strategy are the subjects of this volume, but what exactly are they, and how does one differentiate between them? War is a political and social activity, which has been most accurately defined by Hedley Bull as 'organized violence carried on by political units against one another'.[3] Important points to note in this definition are that the

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violence is organised and undertaken by political units. This is not to say that violence in war is always tightly controlled, or that it always has a clear and direct relationship to a political goal. However, Bull's definition does imply that the violence stems from political motives (whatever they might be) and has purpose; it is not random or mindless. The policy objectives that motivate war can be extremely varied, as Clausewitz reminds us: 'Policy…is simply the trustee for all these interests against other states…we can only treat policy as representative of all interests of the community.'[4] In this sense, we must regard war, not as the failure of politics, but as politics through violence: 'War is the continuation of political intercourse with the admixture of other means.'[5]

This work takes a fairly broad approach to the subject of what should be classified as war. For conceptual clarity and validity, this book takes the position that any act of violence undertaken by a political actor for policy effect should be defined as war. Thus, a terrorist car bombing or the large-scale invasion of one state by another is an act of war. The scale of violence is not the determining factor when defining war. Rather, the existence of war is determined by the nature of the actor using violence and the intent underpinning the act. This definition also applies if violence is threatened but not used. This reflects the important point made by Clausewitz when he notes that everything in war relates to battle: 'it is inherent in the very concept of war that everything that occurs *must originally derive from combat*' [emphasis in the original].[6] This broader definition of war even applies to political violence by proxy. So, for example, a state supporting an insurgency (perhaps through the supply of material or the training of forces) against another state is engaged in war. This is so because said actor is using violence against another political unit for policy objectives. There may be political, legal and security ramifications for taking such a broad approach to the definition of war. However, conceptual clarity requires it.

Such a rational, Clausewitzian approach to the definition of war is not universally accepted. For some the scale of violence is the key when defining war. From such a perspective, for a conflict to be classified as a war a certain number of combat fatalities must occur. The figure often used in this respect is 1000. Clearly, such a numerical fixation is nonsensical, and may lead to ludicrous anomalies. Are we to accept that a politically motivated violent conflict resulting in 999 fatalities is not war because one too few people has died?

Equally problematic are those occasions when organised violence for political ends is not defined as war for political purposes. It is often the case that a government facing a terrorist or insurgent campaign will refuse to use the term war to describe the security situation. This is done so as not to endow their irregular foes with a sense of legitimacy. Within international politics the idea that states have a legitimate monopoly on violence is a widely accepted norm. Thus, to describe an irregular campaign as war is to give an irregular foe a sense of legitimacy. In contrast, states prefer to describe irregular acts of war as criminal actions. A state actor may also choose not to define violent actions as war in order to limit the political fallout of military adventure. Describing actions as 'military assistance' is less controversial than declaring that the state is going to war.

However desirable a more restricted approach to war definition may be for political decision makers, it can have negative consequences. It has been convincingly argued

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that the United States erred by not declaring war during the conflict in Vietnam. Harry G. Summers concludes that this prevented the USA from enacting wartime measures at home, and also failed to prepare the US public psychologically for the coming struggle.[7] The Bush Administration's approach to the 'War on Terror' presents a striking contrast. Although the labelling of the war against Al Qaeda has received strong criticism, it could be argued that it set the correct mood for the long and costly conflict to come. It can be seen from this brief discussion that how we define certain activities can have significant consequences for how they are perceived and even conducted.

The focus of strategy is the relationship between war and policy objectives, and can be described as *the process that translates military power into policy effect*. Strategy, then, is not war. Rather, it is the process by which war functions as a political act. Thus, when a practitioner looks to war to solve his political problems or to pursue political ambitions, he must concern himself with strategy. For, it is only through strategy that war can successfully function as a form of politics. Without the process of strategy, military power may become disconnected from the policy that gave rise to it. It is true that the exercise of military power will have a strategic effect, whether desired or not. This simply refers to the reality that there are political consequences to military actions, no matter how small. However, for military power to have a positive policy effect, it must be guided by strategy.

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Understanding the complexity of strategy

War has played an important, albeit tragic role in human history. The outcome of wars can have substantial consequences for the individual, the state or the entire international system. Thus, it is wholly sensible for those with responsibilities in this field to seek to understand both the nature of war and best practice. This task is challenging. War is a complex human phenomenon, one influenced by many external factors and internal dynamics. In the modern period this complexity has increased with the development of technology and associated new forms of warfare. The invention of heavier than air flight and nuclear weapons are but two examples of technology opening up new threats and opportunities in the field of conflict.

As war has become more complex, practitioners and theorists have sometimes struggled to understand the sustained implications of new developments. As an example, air power impacted on almost all existing forms of warfare, but also promised to enable revolutionary new methods. Strategic bombing, airborne operations and close air support (CAS) all promised radically to alter actions in and beyond the battlespace. But which of these would offer genuinely lasting effects? As military establishments and their political masters have sought to understand this new third dimension to warfare, the task was further complicated by the opening up of the space and cyberspace environments. Thus, the arena of strategy was expanded further. This expansion is only part of the challenge, however. Just as important are the implications of social, cultural and political change in the modern period. The backdrop for strategy has become more prominent. This is nowhere more evident than in the field of ethics. Strategic practitioners are increasingly subject to ethical and legal standards. This creates a substantial challenge in an activity that is, by its very nature, violent and chaotic.

Thankfully, at the same time that the challenge of strategy has intensified, intellectual enquiry has also increased. It took the invention of nuclear weapons, and in particular the very real threat of global Armageddon, for man finally to take up the mantle handed down by Sun Tzu in a more systematic fashion. The novelty of nuclear weapons, allied to their destructiveness, meant that the military was no better placed than anyone else to comprehend the new epoch. Thus, civilian academics from a wide range of disciplines turned their thoughts to the challenges of modern strategy. And, hence, strategic studies began to develop, drawing inspiration and influence from various fields, including economics, history, anthropology and philosophy.

This all bodes well for the theory and practice of strategy. However, strategic studies, despite its growing popularity, still struggles to find a permanent home in the world of academia. There are a few established think-tanks and research institutes that specialise in the field. However, in the university environment, centres for strategic studies have largely failed to develop into independent departments.[8] Strategic studies degree programmes have emerged in recent years, but are still far from widespread. Often, subjects in the field of strategy are offered merely as options within degrees in international relations or history. There is also concern that the current heightened profile of strategic studies will not survive once the current security environment changes. It is evident that the growth in interest in the subject is substantially related to the events of 9/11 and the subsequent conflicts in Afghanistan and Iraq. Once these security challenges diminish, public interest may shift to other fields of enquiry. While this is to be expected, it is important to maintain an ongoing intellectual engagement with the subject. As Betts intimates, it is important to keep the strategic flame alive, even during times of relative peace.[9] Our understanding of strategy must be maintained and developed down through the generations. However, as logical as this sounds, the Iraq war suggests that the fruits of strategic studies are often disregarded by those with strategic responsibility.

It is hoped that books such as this will help to further establish a solid intellectual foundation for the ongoing development of strategic studies. By offering a broad introduction to the subject while at the same time maintaining a reasonable depth of analysis, this work seeks to help codify and cement the study of war as a coherent, unified field of study. In order to achieve this goal, this book is divided into three parts.

Chapter summaries

The first part contains six chapters that establish the context in which strategy occurs. The first of these six chapters defines strategy in a detailed manner. In particular, the chapter outlines the nature of strategy, and then identifies those features that pose substantial challenges for the practitioner. From there, the work seeks to provide various answers and/or aids to help manage these challenges. The chapter finishes with an explanation of the various uses of military power. It is shown that, in spite of its being a rather blunt instrument, military force is surprisingly flexible when used correctly.

Chapter 2 deals with what is probably the most basic, but also the most fundamental truism in strategy: that it is a human activity. That being the case, Chapter 2 addresses the human dimension through two main areas of study: culture and psychology.

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Discussion of the former takes us into the realms of the strategic culture debate. The literature on strategic culture raises questions regarding the influence culture has on the practice of strategy. The chapter discusses the validity of the notion of strategic culture, and addresses a range of issues, such as the dangers of stereotyping one's opponents. Having discussed culture, the chapter then turns its attention to psychology, and in particular to the crucial but intangible forces of morale and unit cohesion.

Chapter 3 deals with the increasingly challenging area of ethics as applied to war. Since this volume is primarily concerned with understanding the nature of strategy and best practice, this chapter will conclude with an analysis of how strategists can incorporate an ethical dimension into their practice while still seeking to achieve their policy objectives. However, before that can be done the basic foundations for ethics must be understood. It is also important to understand the realist take on the role ethics plays in international politics. Since strategic studies is heavily infused by realism, it is important to understand how the latter views ethical issues. It will become clear that tensions exist between some of the core demands of ethics and the realist school of thought. In order to understand how some of these tensions can be mitigated, the chapter will outline the 'just war' tradition, which seeks to reconcile the need for war in international politics with ethical concerns. The just war tradition is reflected in the modern laws of war. It will be argued that although the laws of war provide a reasonably balanced and sensible approach to the regulation of armed conflict, modern interpretations and their use has become increasingly problematic from the perspective of best practice. It is this that creates the need for a strategy-centred approach to subject of ethics and war.

Technology provides the tools for strategy – this much is clear. What is less clear is how significant is the role played by man's inventions. Chapter 4 seeks to explore this issue through the prism of the revolution in military affairs (RMA)/military transformation debate. At the centre of the RMA hypothesis is the idea that periodically opportunities arise to transform the conduct of warfare. If pursued correctly, these changes may confer significant advantage on those who exploit them, and may even revolutionise the act of war. Perhaps not surprisingly, this hypothesis has not been universally accepted. Thus, Chapter 4 begins by outlining the origins and development of the RMA hypothesis. The chapter will pay particular attention to the ongoing information age RMA. Various challenges to the latter will be discussed. The chapter will then discuss the role of technology in strategy, identifying it as an important but not decisive dimension. This chapter concludes with an assessment of whether the RMA hypothesis has any real utility in the theory and practice of strategy. Throughout the chapter historical case studies will be used to illustrate the various sides of the debate.

Chapter 5 discusses the surprisingly neglected field of intelligence in the conduct of strategy. The chapter notes that strategists are rediscovering the field of intelligence, and thus outlines the key issues that have arisen as a result. The first section notes key historical events that aroused contemporary interest in this topic. A second section discusses ways in which theorists have depicted the relationship between intelligence and strategy, and how their work may help policymakers organise intelligence services to keep strategists as well informed as possible. These theoretical concepts, however, are not fully satisfying. A third section observes that intelligence agencies perform

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functions that go beyond passively gathering information. The fourth and final section suggests that, despite theorists' attempts to distinguish between intelligence and the strategic planning it supports, intelligence is an organic part of strategy, which raises many of the same moral, political and operational issues as war itself.

Chapter 6 conceptually lifts the work above the challenges of using military force for policy effect, and into the higher realms of grand strategy. The first section of the chapter summarises the reasons why some question the existence of grand strategy. A second section notes that states and other political actors do, nevertheless, act purposefully at the grand strategic level. A third section explores some of the factors that underpin successful action in this arena and reflects on points to consider when interpreting them.

Having set the context within which strategy is practised, the second part of the book deals with strategy in the main geographic environments: land, sea, air and space. Chapter 7 focuses its attention on that most basic of geographic expressions of military power: land warfare. In doing so it begins by explaining the concept of 'control', as expressed by Admiral J. C. Wylie. The chapter then goes on to discuss how control is achieved in the modern environment. To that end it explains the techniques of modern land warfare as follows. An initial section details the problems soldiers faced as modern weapons and modern industry became widespread. This section focuses on the example of the First World War. A second section discusses the solutions that commanders in that conflict developed. The third section discusses the way in which military thinkers of the 1920s, 1930s and 1940s integrated new weapons and new tactics into higher levels of planning. A final section asks whether methods that emerged during the world wars of the twentieth century remain appropriate in the wars of the twenty-first.

Chapter 8 deals with sea power, which is an area of strategy afflicted by definitional problems. The chapter begins by seeking to provide clarity on the parameters of the subject. Much of the existing confusion stems from the interchangeable use within the literature of the following terms to describe strategy at or from the sea: naval, maritime and sea power. The chapter opts for the last term, and does so on the basis that it restricts analysis to the use of military assets in the maritime environment, rather than including other maritime issues such as insurance. The chapter also provides conceptual clarity by identifying the differences between command and control of the sea, both of which seek to explain strategic relationships within the maritime environment. This section is enhanced with a discussion of sea denial (the attempt to deny use of the sea to a maritime enemy). Since strategy is concerned with using military assets to achieve policy objectives, the chapter explores the many varied ways in which sea power can be used in this respect. The chapter closes with an analysis of the most pressing issues in contemporary sea power. In particular, the work looks at piracy, the operational implications of the information age, and the latest version of the maritime strategy of the United States.

Chapter 9 assesses the development and significance of strategy in the third dimension. It is argued that the invention of heavier than air flight at the beginning of the twentieth century instigated some of the most significant changes to the character of warfare. In order to understand these changes, the chapter describes and analyses the development of air power over the last 105 years. This analyses ranges from the surprising diversity of operations in the First World War, through the massive bombing

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campaigns and division-scale airborne campaigns of the Second World War, and finishes with an assessment of air power in the most recent of conflicts. The chapter highlights the flexibility of air power, but also identifies its weaknesses as an instrument of strategy. In the final analysis, the chapter concludes that air power is an extremely potent form of strategic power, but one that is best used as a supporting arm to surface forces.

Chapter 10 turns our attention to the still underdeveloped subject of space power. The chapter summarises the ways in which space technology affects strategic thought in the early twenty-first century. The first four sections introduce the spacecraft and related technology that have proven most useful in military operations and other strategic activities. These sections outline what currently existing space systems can and cannot do. A concluding section discusses issues space technology raises for strategists. These range from theoretical questions about whether strategists should treat space strategy any differently from any other form of strategy to more immediate debates concerning which branches of the armed forces should control space operations.

Having discussed the theory and practice of strategy in the main geographic dimensions, the final part of the book explores some of the most challenging forms of strategy: nuclear strategy and irregular warfare. Arguably, the invention of nuclear weapons has posed the greatest challenge to modern strategists. The destructive power of these weapons, especially when fitted to ballistic missiles, poses substantial challenges to those who have to control them for policy effect. Thus, Chapter 11 begins by describing the basic technological characteristics of nuclear weapons, and the core strategic concepts that flow from these. Having established the basic parameters of the subject, the chapter then explores the development of nuclear strategy during the Cold War, making reference to the most important works of theory in the field. It is argued that deterrence was always at the heart of nuclear strategy. However, deterrence was never as simple or easy as some proclaimed. Indeed, in nuclear strategy the details really matter. While recognising the dominance of deterrence, the chapter also analyses the important work done in the field of nuclear warfighting. Finally, the chapter discusses the contemporary nuclear security environment, and in that connection presents a blueprint for nuclear strategy for the current age.

Chapter 12 deals with one of the great challenges of modern strategy: terrorism. The chapter equips readers to analyse the ways in which terrorists and their opponents work to achieve political and military objectives. The first section discusses what terrorists have commonly been able to accomplish, the techniques they have commonly employed, and the resources they have commonly required. A second section considers the methods state governments and others have commonly used against terrorists and the strategic decisions those who fight terrorists must make. The conclusion considers the way in which terrorists fit into broader struggles in world politics and considers the proposition that an exceptionally vicious ‘new terrorism’ presents an unprecedented threat in the twenty-first century.

Alongside terrorism, insurgency dominates contemporary debates on strategy. Despite years of experience and theoretical and doctrinal development, counter-insurgency (COIN) remains one of the most challenging pursuits in modern strategy. Chapter 13 seeks to discover why this is the case, and what can be done about this state

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of affairs. In order to do this, the chapter opens with an analysis of insurgency, focusing on how it functions as an instrument of strategy. From there, the work critiques accepted wisdom on counterinsurgency. Making reference to important theoretical works, alongside historical experience, the chapter provides an alternative approach to the practice of COIN. In particular, the chapter highlights the importance of understanding COIN as war. From this position, while recognising the value and importance of the 'hearts and minds' dimension, the chapter refocuses our attention on defeat of the enemy forces and coercion of the local populus. Overall, the chapter seeks to reconnect the practice of COIN with the core principles of strategy.

The book concludes by asking what patterns exist in grand strategy today. Although a thorough answer to that question would require volumes, the concluding chapter of this work sketches the outline of a response – and reflects on how studying the contemporary grand strategic environment can help us to understand the broader topic of twenty-first-century strategy.

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Part 1

Context

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1 Defining strategy

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Reader's guide: The use of military power in politics (offence, defence, deterrence, coercion, miscellaneous); defining strategy; the levels of strategy; the challenge of strategy (the troubled relationship between war and politics, the multidimensional nature of strategy, the polymorphous character of war, the nature of war, and friction); dealing with the challenge of strategy (theory and history, ample and quality forces, appropriate strategic culture, and military genius and effective command process).

Introduction

The conduct of warfare, regardless of time or place, cannot be meaningfully understood without reference to strategy. This book is divided into chapters that deal with strategy in many different contexts. The essence of strategy, however, remains constant regardless of the situation. Strategy, which can best be described as *the process that converts military power into policy effect*, provides purpose and meaning to military activities. This opening chapter seeks to provide an understanding of strategy and the different levels at which it operates. Said understanding will not only define the core features of strategy, it will also identify those aspects of strategy that create substantial challenges for the practitioner. In particular, the discussion will focus on the troubled relationship between war and politics; the multidimensional nature of strategy; the polymorphous character of war; the nature of war; and friction. The chapter will then discuss the various ways in which these difficulties can be overcome. However, before the chapter delves into the complexities of strategy, it will consider the place of military power in the world of politics, and, in particular, will discuss the varied uses to which it can be put.

Box 1.1 **Strategy defined**

Strategy is the process that converts military power into policy effect.

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The use of military power

Although military power often appears ill suited to the nuanced world of politics, war is a political act, even, at times, a necessary one. In conceptual terms, military power used in the pursuit of policy objectives can take a number of forms: defence, offence, deterrence, coercion, and miscellaneous. Taken together, these categories represent the many uses to which military force can be put. Although military power is often perceived as a fairly blunt instrument of policy, in the right hands it is a remarkably flexible tool, and, especially in relation to its psychological effects, can be fairly subtle. This chapter will now briefly outline each of these different uses.

For many, defence is the most basic and important function of military power. Providing physical security for the state is an essential enabler for the proper functioning of society. Indeed, without effective defence, societies and/or states can simply disappear off the map. For example, South Vietnam and Carthage are but two examples of states that no longer exist due purely to a failure in the defensive function of their military forces. Even if a state survives foreign attack and invasion the effects of aggression can still be devastating. Millions of Jews in Europe (those outside the borders of Nazi Germany) were slaughtered in Nazi concentration camps because the military forces of their respective states could not withstand German forces of conquest. Although the notion of security in modern international politics has sensibly expanded (to include such dimensions as economic and environmental security), providing basic physical security for its citizens and resources still remains the primary function of the state. Yet, despite the importance of the defensive mission, there are no guarantees that it can be fulfilled in every circumstance. It may be, as was the case for Poland in 1939, that an enemy simply proves too strong and overwhelms defensive measures taken.

Despite the best efforts of sections of the international community (as expressed through international organisations and international law), military power continues to perform an offensive role. Both substate actors (terrorists and insurgents) and nation states still regard the aggressive use of military force as legitimate and productive in pursuit of their policy objectives. Serbian aggression in the Balkans, 9/11, and the invasions of Afghanistan and Iraq all serve to illustrate this point. Whether or not these particular adventures are regarded as successful is something of a moot point. From the perspective of a strategic analyst what matters is that certain actors choose offensive military power as the most appropriate means to achieve their objectives. Indeed, there are some policy objectives that are only attainable by aggressive military action, at least in a reasonable timeframe. Although the removal of the Taliban (from power in Afghanistan) and Saddam Hussein could conceivably have been achieved via diplomatic and economic pressure (although this is debatable), military power achieved these goals in relatively short order. However, as these and many other examples illustrate, the offensive use of force is fraught with difficulties and dangers. ‘Use with care’ is a label ideally suited for the offensive use of force.

In contrast to physically taking or defending something, deterrence and coercion function via the psychological effect of military power. Whereas deterrence has the negative objective of persuading an enemy not to take a certain course of action, coercion seeks to compel an enemy to act in a certain manner. It is tempting to suggest that deterrence differs from coercion in that the former relies solely on the threat of force,

not its actual use. Whereas, coercion often requires a demonstration of force (the infliction of some pain) to have an effect. However, while there is some validity in this perspective, it is not entirely true. Deterrence can occur once fighting has actually started. In such circumstances, so-called intra-war deterrence may rely on actions taken to increase the potency of threats. Nonetheless, it is generally true to note that deterrence is seen to have failed if force is actually used. It is also correct to note that coercion can, and often does, function purely on the threat of force to compel. The mere deployment of forces in theatre may sometimes be enough to encourage a change in behaviour.

In conceptual terms deterrence can operate via two distinct but certainly not mutually exclusive methods: punishment and denial. The former is perhaps the most commonly understood form of deterrence, and relies for its success on the threat of the infliction of unacceptable costs on an enemy. By contrast, denial, as the name suggests, seeks to deter an enemy by denying him the ability to achieve his objectives. Deterrence grew to prominence during the Cold War, as it appeared to be the most apt defence posture for nuclear weapons. However, deterrence is by no means a product of the twentieth century, neither has it lost its relevance since the end of the superpower standoff. It remains an important element in defence policy, but must, of course, be tailored to specific circumstances of the time.[1]

Coercion, as Thomas Schelling so aptly describes, is based on 'the power to hurt'.[2] If it works well, coercion is an efficient use of force, including, as it does, the possibility of no actual fighting occurring. Thus, policy objectives may be met simply by a vocal threat of force or perhaps by the actual deployment of forces into an area. As Byman and Waxman so clearly describe, there is a difference in taking something and persuading someone to give it to you.[3] In terms of costs to oneself, the latter is normally preferable. Although violence may not be needed, it is sometimes the case, as in the 1999 Kosovo campaign, that force may have to be applied over a period of time until the enemy has taken enough punishment and changes his behaviour to avoid further damage.

Although potentially efficient forms of strategy, both coercion and deterrence suffer from similar problems and limitations. Most importantly, in terms of achieving one's objectives, they both cede a certain amount of control to the enemy. Ultimately, it is the enemy who decides if he will accede to one's demands or not. His pain threshold may be extremely high, or he may not fully believe the threats he faces. Both forms of strategy also rely on a reasonable understanding of the enemy. What does he value? How can I hurt him sufficiently? Indeed, can I hurt him? How much pain can he withstand? How does his decision-making process work? These are all extremely valuable questions one must pose when constructing a strategy of deterrence or coercion. In order to provide satisfactory answers to these questions, the intelligence challenge is substantial. For example, in the analysis stage of the intelligence cycle there is a real danger that one falls into the trap of mirror imaging. This describes a situation in which one imposes one's own rationality and value system on another. There is also the danger, of course, that a particular enemy may be beyond deterrence and coercion. Like all other aspects of strategy, there are no guarantees in these forms of action.

Despite its rather blunt image, military power has great flexibility as an instrument

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of strategy. Those roles not mentioned already can be corralled under the heading 'miscellaneous'. Within this category there are too many uses to discuss all individually, but the most significant ones are defence diplomacy, constabulary, disaster relief, and peacekeeping. Defence diplomacy utilises military forces to grease the wheels of peaceful diplomatic relationships. Port visits by naval vessels and military parades for visiting dignitaries are some of the most obvious examples of this type of activity. The constabulary function covers counternarcotic operations as well as the enforcement of trade embargoes. Disaster relief is rather self-evident, but no less important for that. Due to their range of capabilities and culture of service, military forces are often the first on the scene of a major disaster. Finally, as the post-Second World War environment reveals, various international and regional organisations have used neutral military forces in attempts to stabilise tense security environments, thereby enabling lasting political solutions to be explored.

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Defining strategy

It has been established that military power has a substantial and reasonably flexible role in politics. But how does one translate military power into policy effect? The answer is strategy, but this term requires careful definition. The theoretical literature provides many definitions of strategy. In his definition, Clausewitz prefers a rather straightforward combat-oriented approach: '[S]trategy [is] the use of engagements for the object of war.'[4] In his contribution, Liddell Hart appears to have a slightly more nuanced understanding of the role military power can play in the pursuit of policy: '[S]trategy is the art of distributing and applying military means to fulfill the ends of policy.'[5] One could argue that Liddell Hart's definition appears broader than that of Clausewitz and can incorporate acts such as coercion and perhaps even peacekeeping and constabulary operations. French theorist André Beaufre draws our attention to the competitive nature of strategy: '[S]trategy is . . . the art of the dialectic of force or, more precisely, the art of the dialectic of two opposing wills using force to resolve their dispute.'[6] Finally, Colin Gray describes strategy as '[T]he bridge that relates military power to political purpose; it is neither military power per se nor political purpose.'[7] Drawing on all these definitions for inspiration, to reiterate, this work defines strategy as *the process that converts military power into policy effect*. When constructing this definition it was tempting to make reference to the role of the enemy. However, for the sake of brevity the important notion of an intelligent foe is taken as read.

Box 1.2 **The levels of strategy**

Policy – Sets the objective to be achieved
Grand strategy – Coordination of all a nation's assets to pursue policy objective
Military strategy – Use of military power in support of grand strategy
Operational – Links tactical actions to military strategy (conceptually and geographically)
Tactical – Details relating to combat (deployment and engagement)

For conceptual reasons, and perhaps, more importantly, to rationalise the delegation of command, the process of strategy can be organised into different levels. Atop the taxonomy of strategy is *policy*: the objective to be pursued. As Clausewitz reminds us, policy objectives can be extremely varied: 'Policy . . . is simply the trustee for all these interests against other states . . . we can only treat policy as representative of all interests of the community.'[8] Whatever the policy objective in question, it must guide all the strategist's actions. Since war is merely political intercourse conducted through the threat or use of violent force, military actions should never become divorced from the policy they serve. However, establishing a viable relationship between policy and the military instrument is challenging. The difficulties associated with this task will be discussed later in the work.

Once a policy objective has been identified, a method to achieve it must be established. In order to do this, the strategist must evaluate all means at his disposal in light of the objective sought. For conceptual clarity, these means are normally divided into four categories: diplomatic; intelligence; military, and economic (DIME). Taken together, these are the instruments of *grand strategy*, the function of which is 'to coordinate and direct all the resources of a nation, or band of nations, towards the attainment of the political object[ive]'.[9] Like strategy, grand strategy is a process by which these various means are translated into policy effect. One of the key decisions to be made in grand strategy is what mixture of means is to be used. It may be that military force plays no part in certain contexts. Alternatively, as in the Second World War, military power may be the leading component.

If attainment of the policy objective requires the use of military force, then *military strategy* (the focus of this volume) comes into play. The process of translating military power into policy effect is achieved through the *tactical* and *operational* levels. The former is concerned with the details of combat. More specifically, tactics is about deployments, engagement with the enemy and interaction among various units at a commander's disposal. Although each contact with the enemy represents a distinct tactical event, in the modern period it is normally the combined effect of tactical actions that has an effect on strategy. How tactical actions relate to strategy is the realm of the operational level, which can be thought of in conceptual and physical terms. Conceptually, it is at the operational level where tactical actions are joined together to create strategic effect. In a physical sense, the operational level represents a large command area within which tactical actions are coordinated towards some operational goal. These goals are varied, but may include the capture of a city, the destruction of enemy forces, or the pacification of an area.

More often than not significant strategic impact will only result from the cumulative effect of many tactical events. The process by which these events are coordinated exists at the operational level. A strategic bombing campaign provides one such example, in which the cumulative effect of a number of bombing raids gradually depletes the enemy's will and capability to resist. However, in some circumstances it is possible for one tactical event to influence strategy significantly. History is replete with many campaigns that were won or lost on the basis of one battle, lasting perhaps only a few hours. In the modern era it is still possible for small tactical actions to have serious consequences. Take, for example, the Serb massacre of Kosovo Albanians at Racak, which appeared to be the trigger for NATO intervention in Kosovo.[10]

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The challenge of strategy

If a war is conducted with competence, actions throughout the different levels of strategy will be coordinated and harmonious. The policy objective should be clear at all levels of command. There should be a clear understanding of how military force can best serve the objective, and a suitable and viable military objective should be established. The operational-level commander should appreciate how the tactical units at his disposal can work together to produce positive effect. Finally, these units must perform competently at the tactical level in the face of the enemy. This all sounds fairly straightforward. However, as this chapter will illustrate, there are many obstacles to overcome to produce such a smooth and harmonious strategic campaign, not least of which is the real danger of disharmony occurring among actions in the different levels of strategy.[11]

Box 1.3 **Disharmony in the levels of strategy: Nazi Germany**

The performance of Nazi Germany in the Second World War provides a vivid example of what can occur when the levels of strategy are out of kilter. Throughout the war, German forces generally performed extremely well at both tactical and operational levels. However, German grand strategy simply asked too much of them. Hitler's ambitions could not be met with the resources available to the German armed forces. As the war progressed, Germany acquired too many powerful foes on too many fronts. Ironically, one of the fronts that Germany acquired it did so as a result of tactical success. North Africa was never intended to be a significant theatre of operations for Germany. However, it became so due to a combination of Rommel's ambitions and outstanding early successes, aided by British errors. In this sense, tactical success can foster ambitions and open up opportunities that do not sit well with the situation at the higher levels. Overall, it can be seen that Germany, despite the quality of its forces, suffered from disharmony among the levels of strategy.

Disharmony among the levels of strategy is but one of the many challenges thrown up by the nature of strategy. Indeed, difficulties for the practitioner are to be found from the get go, within the core relationship in strategy: that between the military and policy worlds. Due to its violent and destructive nature war can sometimes appear to be a rather clumsy and blunt instrument in the world of politics. This is not to suggest that war is necessarily an inappropriate tool of policy. Rather, it is to note that, although sometimes necessary, the very nature of military power produces negative side effects. Take, for instance, modern counterinsurgency. Military force is essential to counterinsurgent forces in order to provide security for development and stability projects. At the same time, there is the ever present risk of collateral damage and the fact that the mere presence of well-armed foreign troops may alienate the local population. The complex and fragile process of sociopolitical nation building does not necessarily sit easily with the presence of military forces. The introduction of military forces can also

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lead to escalation of a crisis, which often entails a more protracted campaign than first envisaged. Put simply, the use of military power often unleashes powerful emotions and adds an extra layer of interaction, with uncertain outcomes likely to result.

Contrastingly, military power can often be the most appropriate instrument to fulfil political objectives. The mere presence of military power may coerce an adversary into compromise without the actual use of destructive force or the need for protracted economic sanctions and diplomatic manouevres. Alternatively, in the face of a powerful and threatening neighbour, the deployment of military forces may be a wholly sensible preparation for self-defence. At the more aggressive end of the scale, military power is the only viable instrument for those intent on conquest or destruction of foreign powers. However morally repugnant, the Third Reich's ambitious goals could only be pursued through military means. Interestingly, the final outcome of the Second World War highlights the real dangers of unleashing the military instrument as a tool of policy. Of course, such counterproductive results are not inevitable, as much of the history of the Roman Empire testifies. This discussion suggests that the applicability of military power is often uncertain, and that the instrument requires careful handling.

The practice of strategy can also be compromised by the cultural mismatch between the political and military worlds. The outlook, agendas and methods of these two partners in strategy can be far removed from one another. Modern democratic political leaders are often preoccupied with a range of factors that do not figure so prominently in the military sphere. These include public opinion (which is often shaped by the media), internal party politics and election timelines. These will inevitably influence the political atmosphere within which strategic decisions are made. However, these same concerns may be out of kilter with the realities of war. The inevitable violence of warfare rarely plays well with a modern audience. Similarly, uncertainties emanating from interaction with the enemy usually do not tolerate precise exit strategies and dates favoured by political leaders.

These points of tension between the political and military aspects of strategy can only be dealt with via what Elliot Cohen has described as the unequal dialogue.[12] When producing strategy, it is essential that both sides in the process understand one another's environments, capabilities and requirements. The political leadership must appreciate what is militarily possible, and vice versa. It is likely that both sides will have to compromise on their ideal position. Nonetheless, whatever compromise position is reached, the resulting strategy must be in tune with the nature of war. If this is not the case, an enemy may be able to exploit this deficiency. The inequality in the dialogue emanates from the fact that the military is a tool of policy.

Some of these tensions are not present when the political and military leadership are combined in one individual. Leaders such as Alexander the Great and Napoleon merged political and military requirements. In many respects, this appears to be the perfect solution to the problems at the heart of strategy's troubled relationship. However, in the absence of a genuine dialogue there is a real danger that strategic decisions are taken without the benefit of an external audit. In the cases of both Alexander and Napoleon, the result of this was the same. Neither leader could contain his ambitions and eventually outreached himself. Napoleon was eventually defeated by the range of enemies he had acquired, and Alexander was forced to turn back when his army mutinied in India.

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It should also be noted that on occasions the separation of political and military leaderships has worked extremely well. Cohen notes that strategic decision making prospered once President Lincoln found General Grant to lead the Union war effort.[13]

Not only is strategic performance challenged by the taut relationship at the heart of strategy, the very nature of war as a physical activity also complicates the task of the practitioner. The nature of war is complex and may be defined using a number of terms. Excluding the policy rationale, which as an element of the nature of war has already been dealt with in the earlier discussion on the nature of strategy, the following categories appear to capture the main features of war: violence, competition and uncertainty (largely emanating from human interaction).

War cannot be understood without reference to violence: '[W]ar is a clash between major interests, which is resolved by bloodshed – that is the only way in which it differs from other conflicts.'[14] Although violence may not occur in every situation in which strategy is at work, it is always possible and indeed is the engine of policy effect: '[I]t is inherent in the very concept of war that everything that occurs *must originally derive from combat*' [emphasis in the original].[15] The presence of violence produces many challenging affects on those involved in strategy. Most obviously, violence diminishes one's forces. The loss of men and equipment reduces one's physical capability to achieve policy objectives. However, the effects of loss are not only felt at the physical level. The emotional impact of losses may affect the morale of troops and weaken the resolve of the public and/or the political decision makers. Thus, the strategist may have to navigate his way through stormy emotional waters, while at the same time witnessing a reduction in his military capabilities. While correctly recognising the negative effects of violence on strategic performance, it is important not to present this issue in a simplistic, one-dimensional form. The relationship of violence to resolve and morale is complex. Being on the receiving end of violence can rouse a society into action and greater resolve. The determination of the United States to defeat Japan in the aftermath of Pearl Harbor is but one example of this effect.

The competitive nature of war is self-evident, but no less important for that. Indeed, the role of the enemy must not be underestimated. When asked why the Confederate South had lost the battle of Gettysburg, General George Pickett replied: 'I think the Union Army had something to do with it.'[16] The significance of a hostile enemy can be appreciated when one considers how difficult it is to achieve policy objectives in the realm of peaceful domestic politics, where opponents may criticise a government's actions but do not actively sabotage them. In strategy, the existence of an intelligent foe substantially complicates the task of the practitioner in numerous ways and at all the levels of strategy. Not only is the enemy seeking to prevent one from reaching one's goals, his objectives must also be taken into account, and may have to be countered. The enemy can complicate the nature of one's strategic tasks in many ways. For example, he may change the nature of the challenge entirely by opening up a new front or acquiring new allies. Indeed, his new allies may include opponents within one's own country, in which case domestic subversion becomes a problem. *In extremis*, the enemy's existence may all but guarantee failure. Put simply, an opponent may be so powerful, or have such a strong resolve, that one has to rule out any chance of achieving one's objectives.

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To note that war is a human activity infused with uncertainty is, in some respects, an unremarkable statement. Much of human life is characterised by a degree of uncertainty. When error-prone humans are involved in any activity uncertainty is almost always present. The simple task of getting to work on time is at the mercy of numerous factors that could cause delay. That being the case, there is always a small degree of uncertainty as to whether one will actually arrive on time. Of course, various steps can be taken to reduce this uncertainty. Leaving the house earlier than normal, or making one's sandwich lunch the night before, should enhance the chances of prompt arrival. However, a traffic accident caused by a distracted driver ahead will scupper one's best intentions. If we extrapolate from this simple example and apply the same logic to warfare, then the uncertainties multiply. Not only are there more moving parts (both human and technological) involved, they are under severe pressure from the actions of the enemy, and hence are more likely to fail in their appointed tasks. The presence of the enemy also adds to the level of uncertainty since one cannot be sure of his intentions, the morale of his troops or the possible whereabouts of his forces. Uncertainty also emanates from the unknown results of future interaction among belligerents in a conflict.

The information age has witnessed a host of claims that uncertainty can be significantly reduced in modern warfare.[17] The application of information technology to the battlespace is said to enable the realisation of operational concepts such as dominant battlespace knowledge and total situational awareness. While it is true that the physical assets of warfare are more visible in the contemporary era, uncertainty is still prevalent. Intangible elements, such as morale, cannot be seen and quantified by overhead sensors; the enemy's intentions are likely to remain unknown in their entirety; and as the 1999 Kosovo conflict illustrates, enemies have proved adept at deceiving modern reconnaissance assets.[18] Furthermore, certain forms of warfare, such as terrorism and insurgency, are not based on large numbers of physical assets that can be so easily monitored and targeted. Uncertainty, therefore, will remain a feature in strategy.

So, not only does the interface between military conflict and politics impose strains on the efficacy of strategy, the nature of the former compounds the problem. Above all else, war is a human activity. Although technology plays a very important role in warfare, the nature of war is largely the result of human involvement. Man's involvement in war produces significant levels of uncertainty and unleashes powerful emotions in the face of violence and suffering. Within this challenging environment man must strive to achieve his objectives in the face of an intelligent enemy who may be just as determined to reach his goals. The result of such an interaction can be devastating and costly, as is amply demonstrated in the First World War.

The complexity of strategic practice is complicated further by its multidimensional nature. The idea that strategy can be broken down into component parts, or dimensions, can be found in the writings of Clausewitz, and more recently, Michael Howard.[19] However, it is Gray who has produced the most developed work on the multidimensional nature of strategy. In *Modern Strategy*, Gray identifies 17 dimensions, which he divides into three categories: people and politics (people, society, culture, politics, ethics), war preparation (economics and logistics, organisation, military administration, information and intelligence, strategic theory and doctrine, technology), and war proper

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(military operations, command, geography, friction, the adversary, time). The troubling aspect of this theory for the practitioner is Gray's comment that failure in any of the dimensions may lead to failure for an entire strategic enterprise.[20]

Box 1.4 **Gray's dimensions of strategy**

People and politics

People
Society
Culture
Politics
Ethics

War preparation

Economics and pogistics
Organisation
Military administration
Information and intelligence
Strategic theory and doctrine
Technology

War proper

Military operations
Command
Geography
Friction
The adversary
Time

In practice, the logical outcome of strategy's multidimensional nature is that those in charge of strategy must gain command of a vast range of activities and concepts in order to cope with the different dimensions. This task is made even more difficult because some of the dimensions are not entirely under one's control. Many of the dimensions can be controlled, to some degree, with long and thorough preparation. This most obviously relates to the second category of dimensions, war preparation. However, establishing harmonious relationships between strategic practice and dimensions in the first category, people and politics, is far more problematic. Likewise, many of the dimensions in the final category, war proper, are beyond absolute control. Once fighting has begun, the uncertainty of war and the powerful intangible forces at work require the strategist to attain mastery of these dimensions on the hoof in a constantly shifting context. Despite these inherent difficulties, preparation can still play a part in war

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proper through the establishment of a system that can identify and/or train and educate outstanding strategists. Thus, although, to some degree, the final outcome of a strategic enterprise will rest on the judgement and temperament of the strategist, said commander will benefit from an awareness of the dimensions of strategy. This is clearly an area in which strategic theory has much to offer the practitioner.

It has already been established that war is a complex human activity. This complexity is enhanced further by the polymorphous character of war. Although wars are all things of the same nature, each war differs in its details. These differences can be described in different ways and to varying levels of detail. The most basic taxonomy divides war into regular and irregular forms. The former most often describes warfare that is conducted by large, state-based, uniformed, well-equipped forces that have recognisable formations and command structures. By and large, regular forces attempt to apply the laws of war. In contrast, irregular warfare is the domain of insurgents and terrorists, who are based largely on infantry, are generally regarded as sub-state actors, are fewer in number, operate within less formal command structures, and may eschew uniforms and adherence to the laws of war.

Although, in theory, regular and irregular forms of war can be neatly divided, the reality is far more complex. As in Vietnam, regular and irregular forms of warfare often coexist. Indeed, as was the case for Communist forces in Vietnam, it is possible to operate a strategy that is built on these two forms of warfare. The Communists operated a two-pronged approach in their attempts to conquer South Vietnam. The North Vietnamese Army (NVA) presented a regular threat to US and South Vietnamese forces, while the Viet Cong (VC) operated predominately as an irregular insurgent force in the South. By adopting this strategy, the Communists substantially complicated the task of the Americans and their southern ally. In simple terms, defeating the NVA required fire power and the concentration of forces, whereas countering the VC called for more dispersal of forces and less aggressive operations to protect the populous and win their support. With NVA and VC forces operating side by side, the challenge posed to US commanders is obvious. It is also the case that irregular forms of warfare can morph into regular operations and vice versa. This is the premise of Maoist revolutionary war theory, in which the objective is to graduate from irregular guerrilla operations to full-blown conventional warfare. Alternatively, as displayed by Ba'athist forces in Iraq, a regular army may disperse and transform itself into an irregular force when faced by a conventionally superior foe.[21]

Aside from its basic character (regular and/or irregular), each war is affected by a range of other factors. These include the geography of the battlespace, the strategic culture of the belligerents, and the available technology. It takes little imagination to understand that with such a range of factors affecting the character of warfare, each conflict will be unique. This poses a substantial challenge for those with strategic responsibility, as each potential form of warfare requires different capabilities and preparations. Worse still, since the future is uncertain, the character of the next war remains unknown in precise detail. In these realities, defence planners must prepare for a range of possible futures, usually within the confines of limited budgets. Analysis of the security environment may give some indication of where the next threat is coming from. However, defence planning is not an exact science, and long procurement cycles

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may leave a state with capabilities out of kilter with changing security circumstances.

This is not to say that there are not commonalities in strategic experiences. Many conflicts share certain features. It is this that allows us to learn from history. Despite being over 2000 years apart, Alexander the Great's tactical approach and the German operational concept of blitzkrieg share some important characteristics. Both were based on a combined arms force, within which infantry supported a rapid moving spearhead (Alexander's instrument of decision was the heavy Companion Cavalry). Furthermore, the success of both forms of warfare relied on the ability to punch a hole in the enemy's lines and thereby break his cohesion and resistance.

Within the reality of the polymorphous character of war, each strategic community will be better suited to cope with certain forms of warfare. That being the case, future conflicts may pose substantial challenges to a state's strategic culture and sociopolitical sensibilities. Modern western states tend to be more adept at fighting regular, time-limited wars against clearly identifiable enemies. Although it should be noted, in contrast to some accepted wisdom on the subject, history suggests that the west does not suffer unduly from sensitivity to casualties. The American Civil War and the world wars of the twentieth century suggest that large sacrifices are sustainable in the right circumstances. What does seem to be true is that western societies are less comfortable with protracted wars of choice in which progress is difficult to identify. We can conclude that in the face of the polymorphous character of war a strategic community must remain flexible in its capabilities, strategic culture and indeed its approach to the whole business of strategy.

Much of this discussion concerning the challenges of strategy can be corralled within the useful Clausewitzian concept of friction: 'the only concept that more or less corresponds to the factors that distinguish real war from war on paper.'[22] Friction has been most expertly dissected in the 'unified concept of general friction' as identified by Barry D. Watts. This taxonomy contains danger, physical exertion, uncertainties and imperfections in information, resistance in one's own forces, chance events, physical and political limits on the use of force, unpredictability stemming from interaction with the enemy and disconnects between the ends and means.[23] One could legitimately edit Watts' taxonomy, adding or subtracting various causes of friction. However, the notion of friction as a master concept in strategy is valid. The idea that strategy on paper is a different beast to strategy in practice is an essential truth. The process of translating military force into positive and successful policy effect has to overcome myriad difficulties. It is thus vital that strategic practitioners expect friction and create systems and capabilities able to deal with it. To use a boxing analogy, in the face of friction strategy must learn to roll with the punches.

Dealing with the challenge of strategy

The discussion thus far seems ominous for those in the business of strategy. However, those with responsibility for strategic performance can take a number of steps to help alleviate the impact of the difficulties. In particular, they can engage in study and reflection on strategy, develop appropriate forces, as well as foster the correct strategic culture within their respective security communities. Perhaps most importantly, they

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can seek to identify and foster talented commanders. Alternatively, if natural talent is thin on the ground they can establish command structures and cultures that enable competent generals to produce good decisions.

In the practical world of strategy, the value of theory is open to discussion. Put bluntly, works of strategic theory are not required to understand how strategy functions (although they can help). The process of translating military power into policy effect is not abstract or unfathomable, although it is challenging and sometimes subtle in its procedures. Some of the great practitioners of strategy, men such as Alexander the Great and Napoleon, seem to display a natural affinity for strategy. In this sense, they appear to be innately attuned to how military force can be used for policy effect. Alexander enjoyed such outstanding levels of success over such a long period of time (12 years), and in many varied contexts, that it is reasonable to conclude that he must have had some natural ability for strategy. Perhaps he was endowed with a particularly keen intellect and/or with innate leadership qualities. Napoleon was also said to possess outstanding cognitive abilities.[24] Such conclusions should not surprise us. The notion that the great practitioners have a natural affinity for strategy should no more surprise us than the idea that great artists have a natural artistic gift.

Be that as it may, the natural abilities of Alexander and Napoleon were undoubtedly enhanced by the study of strategy. Napoleon extolled the virtues of historical research on past campaigns, while Alexander must have learned much from his father Phillip II.[25] Strategy is such a complex activity that serious study must be considered a sensible requirement, especially as the subject matter carries such import. As Sun Tzu noted: 'War is a matter of vital importance to the state; the province of life or death; the road to survival or ruin. It is mandatory that it be thoroughly studied.'[26] Thus, in an attempt to follow this advice of the Chinese theorist, the practitioner is well advised to become a student of both theory and history. The requirement for learning is even more essential when one considers that men of Alexander's and Napoleon's type are few and far between. The absence of what Clausewitz called 'military geniuses' must be compensated for. It is thus important for the armed services to institute formal educational programmes into their officer training regimes. Unfortunately, while education in theory and history can be found in most modern staff colleges, they still often play second fiddle to more practical subjects such as procurement and defence management. In tight teaching schedules, Clausewitz is breezed through in order to give more time to understand the workings of the Ministry of Defence. As problematic as the modern military's approach to theory and history is, it is nothing compared to that of their political masters. Although they may occasionally read important books on strategy, there is little evidence to suggest that western political leaders take the time to attain an understanding of the workings of strategy or its practice in history.[27]

While correctly identifying the importance of an education in strategic theory and history, it is important to note the limits of academic ruminations in the practical field of strategy. Since strategy is a complex pursuit, infused by intangible forces, no work of theory can provide a formula for success. This is not the purpose of theory, as Clausewitz reminds us:

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> Theory cannot equip the mind with formulas for solving problems, nor can it mark the narrow path on which the sole solution is supposed to lie by planting a hedge of principles on either side. But it can give the mind insight into the great mass of phenomena and of their relationships, then leaves it free to rise into the higher realms of action.[28]

Theory, then, does not provide the answers, but it does fulfil an invaluable role by identifying the important phenomena in strategy and how they interact. One might say that theory enables us to ask the right questions, or that theory trains the mind.

For theory to be useful, just how closely related to practice must it be? The answer to this question is different depending on whether one is discussing strategic theory writ large or individual works. Brodie is essentially correct when he comments that strategic theory is theory for action.[29] On this basis, it is vital that strategic theory as a whole has a strong sense of the possible. However, this does not mean that each work of theory must talk to the practitioner. The value of an individual piece may come from the contribution it makes to the development of thought outwith a close relationship to practice. From this perspective, the contribution of any particular work to practice may not surface for some time, and, indeed, the relationship between theory and practice may be indirect. So long as a theorist is contributing to our general understanding of military force as an instrument of policy, his work is valid. Furthermore, in line with Clausewitz's comment that theory works by training the mind of the commander, a work of strategic theory can have value without offering principles or making direct reference to existing issues in the practice of strategy. In this sense, the theorist can make an important contribution merely by stimulating the mind of a practitioner in relation to the nature of strategy.

A talented strategist, hopefully with a decent understanding of theory and history, still requires forces of a reasonable quality and quantity (relative to the task at hand) to succeed. Experienced and/or well-trained forces are better able to deal with the uncertainties and challenges (both emotional and physical) that result from the nature of war and friction. Both Alexander the Great and his father Phillip II benefited from having a core of professional troops. The significance of this can be seen most clearly at the battle of Chaeronea, where Phillip's Macedonian forces comprehensively defeated the part-time forces of the Greek city states. Of course, it is often the case that great commanders do not simply inherit good forces. Rather, a great commander is often regarded as such, in part, because of his ability to transform ordinary forces into a well-honed cohesive instrument. This was certainly the case with Phillip II and also Major General John E. Sloan, who is credited for transforming the US 88th Infantry Division during the Second World War.[30]

Just as the quality of forces is important, so it is with the quantity of men and equipment. Sufficient numbers can enable a commander to pursue his objectives in the face of losses and protracted operations. Reserves and replacements can be crucial to cope with unexpected losses or to exploit new opportunities. The old Russian adage, 'quantity has a quality all of its own', still has much to recommend it. Towards the end of the Second World War Germany's war effort suffered substantially from insufficient numbers of men and material. For example, its efforts to defend the Reich from Allied

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bombing raids were hampered by an increasingly small cadre of experienced pilots.[31] Of course, however desirable it may be to have sufficiently large forces, it is not always possible. There may be many reasons (including population trends, cultural attitudes to conflict, and budgetary constraints) why a commander may have only limited forces at his disposal. Thus, whatever the situation may be in terms of resources available, it is important for those responsible for strategy to take into account issues of quantity, relative to the task at hand and the nature of strategy as described earlier.

Within this discussion of men and equipment, it is also worth singing the praises of technology. Although, quite correctly, the value of technology has been questioned within the counter-RMA discourse, one must be careful not to throw the baby out with the bath water. Having superior and appropriate technology in sufficient numbers can confer a significant advantage. Although technological advantage will struggle to overcome factors such as poor strategy or incompetent command, all things being equal, it can make a substantial difference at the tactical and operational levels. In terms of technology, the relationship between quantity and quality is complex. In the Normandy campaign Allied armour came out on top, despite the relative inferiority of its tanks. One on one, most Allied tanks could not match the German Panther or Tiger tanks. However, in terms of crude numbers there were simply too many Allied tanks for the Germans to cope with. One Panther tank would run out of shells before the Allies ran out of tanks.

Waging war, like all other social activities, is to some degree influenced by culture. Just how much influence culture has, or should have, on strategy is open to debate.[32] In terms of whether or not strategic culture is a valid concept, the debate can be divided between those who perceive cultural differences among security communities and those who give more weight to the notion of 'strategic man'. The latter suggest that different actors will make similar rational choices given a similar set of circumstances. As with much in life, the truth on strategic culture lies somewhere in between these two differing perspectives, with perhaps the balance leaning in favour of those who subscribe to cultural differences. While security actors often do act on the basis of rationality and an understanding of best strategic practice, their actions may be bounded by cultural considerations. During the sixteenth century Philip II of Spain, although well informed and capable of sound strategic judgements, was culturally bound by his Catholic faith. Regarding himself as defender of the faith, Philip could not contemplate compromise with his enemies. It was this position that partly led Spain to the ill-fated attempted invasion of Britain in 1566.

For those seeking ways to deal with the complexities and difficulties of strategy, strategic culture is of supreme importance. Anthony Coates has argued that war is a cultural phenomenon that cannot possess an identity beyond those who wage it. That being the case, he would argue, the nature of war can be changed by the belligerents involved. Put simply, if the belligerents can agree, then war can be waged in a more humane manner.[33] While Coates is correct to note that a cultural influence is in evidence in the conduct of warfare, it is also the case that war has its own independent nature that exists and operates separately from those involved. As identified in this chapter, core components in the nature of war are violence and competition. As Clausewitz identified, due to its competitive nature, war has an escalatory tendency. That being the case,

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he provides a warning to those who would seek to moderate war's violent tendency: 'If one side uses force without compunction, undeterred by the bloodshed it involves, while the other side refrains, the first will gain the upper hand.'[34]

With Clausewitz's warning fresh in our minds, it is clear that an inappropriate strategic culture will leave an actor unprepared to deal with the harsh realities of strategic competition. This was certainly the case for the Greek city states when they faced the rising power of Macedonia at the battle of Chaeronea. The warfare practised in Greece at that time was quasi-ritualistic in nature; regulated by shared norms; normally tolerated only light casualties, and had little appetite for pursuit of a defeated enemy. This culturally restrained form of warfare was devastatingly swept aside by the total warfare practised by Macedonia. Thus, it is imperative that modern security communities develop and maintain a strategic culture that accepts the violent and competitive nature of strategy. If this is not achieved, these same communities are likely to struggle in the face of strategy's many challenges. More importantly, they will be at a distinct disadvantage relative to those whose strategic culture is more in tune with the realities of strategy. There is clearly a complex relationship at work between strategy and culture. It would be simplistic to claim either that strategy is all culture, or that the rational actor can dispense with cultural concerns and influences.

All of these measures can make important contributions when seeking to alleviate the difficulties of strategic practice. Nonetheless, strategy is a human activity, and as such success requires human judgement, as Churchill noted: '[War's] highest solution must be evolved from the eye and brain and soul of a single man . . . nothing but genius, the demon in man, can answer the riddles of war.'[35] If nothing else, strategy is concerned with politics, which, in turn, is about human interactions. In the world of politics, perception is critical. Subtle changes can have significant consequences. Thus, it takes the human mind to understand and deal with human affairs. Even then, misjudgement and misperception are to be expected. How will the enemy react? How will we react? How will the public respond? The answers to such questions as these are never likely to be more than educated guesses. Human participation also brings with it emotional forces and intangible variables. Factors such as morale, intentions and public perceptions are difficult to predict accurately and/or control. Consequently, despite best efforts to reduce the effect of uncertainty and complexity in modern strategy, predictable and quantifiable outcomes are not possible. It is thus down to the strategic practitioner to make his best call on these, and many other issues.

The preceding paragraph has not only identified significant challenges in the practice of strategy, it has also noted that the potential solution (human judgement) comes with no guarantees. On this basis, one could be forgiven for thinking that success in strategy is rare. And yet history reveals that policy objectives are often met, albeit sometimes at higher than anticipated costs. Part of the reason for success can be found in Clausewitz's concept of the military genius. Although the Prussian theorist may have been writing about exceptional individuals, such as Napoleon, we can apply some of his criteria for military genius more generally to competent commanders. In this sense, security communities can ease the challenge of strategy by identifying and/or developing military geniuses. Alternatively, in the absence of naturally talented commanders, they can institute command procedures and training that can provide some compensation.

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However, as the mistakes made by Alexander the Great or Napoleon testify, there are no guarantees even in the presence of genius. In which case, the other aids to strategic practice may prove their worth.

When considering what constitutes a military genius, Clausewitz identified a number of characteristics: physical and moral courage; incisiveness; presence of mind; strength of will and character; an ambitious nature; determination; and *coup d'oeil*.[36] Taken together, these traits will not only help the commander identify the route to success, but should enable him to better deal with the inevitable friction that occurs along the way. This does not just apply to the mechanics of warfare, but is also relevant to the aforementioned emotional, intangible aspects of the profession. Leadership, determination and moral courage are all important in this respect. To return for a moment to the cultural and social dimensions of strategy, in recognition of the limits of human aptitude, it is important that society (including the media and politicians) is tolerant (to a point) of mistakes and failures. Due to friction and the array of challenges encountered, even the most talented of strategists is likely to have setbacks. This is even more likely to occur when we consider that each strategic situation is unique, and therefore the commander must, to some degree, learn as he goes along.

Conclusion

Strategy, *the process that converts military power into policy effect,* is a complex and challenging activity. Military power and policy objectives are not always suitable bedfellows. The former may be too blunt and too costly for the refined tastes of the latter. Similarly, policy may sometimes be too demanding of the military instrument. As troubling as this is for the strategic practitioner, this tense relationship between the military and policy worlds is but one obstacle among many to success. Also worthy of note is strategy's multidimensional nature; the polymorphous character of war; the nature of war, and Clausewitz's universal concept of friction. Nonetheless, despite these many obstacles to success, military power is a surprisingly flexible tool of policy. It can be used for defence, offence, deterrence, coercion and various miscellaneous uses. In order to achieve success in these pursuits, the strategic practitioner should take a number of steps. In particular, he should seek education in theory and history; acquire and develop forces sufficient in quantity and quality; nurture an appropriate strategic culture, and develop a command process that enables military geniuses to flourish or compensates for their absence. With these in place, the strategist will be best placed to take on the challenge of strategy in its many environments and forms.

Key points

1. The nature of strategy is unchanging.
2. Strategy is primarily concerned with the process of converting military force into policy effect.
3. Strategy is difficult.
4. Strategy is a multidimensional activity.

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5. The difficulties of strategy can be mitigated by good theory, good and ample forces, and outstanding commanders.

Questions

1. **What is strategy?**
2. **Why is strategy so difficult?**
3. **Can the challenges of strategy be overcome?**
4. **How does the nature of strategy influence the conduct of strategy in different contexts?**

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2 The human dimension of strategy

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Reader's guide: How culture and psychology influence strategy; attempts to control these factors; strategic culture; morale; combat motivation and unit cohesion.

Introduction

To make strategy effectively, one must account for the culture and psychology of the people involved in the process. At the level of war planning, one must pay attention to the courage and other mental characteristics of military personnel, both friendly and enemy. Iraqi leader Saddam Hussein's 1991 plan to bloody his United Nations opponents in 'the mother of all battles' evaporated when a significant proportion of his troops surrendered without attempting to fight. At the level of grand strategy, one must pay attention to civilian attitudes as well. The Communist leaders of North Vietnam understood that they could never destroy the US Army on the battlefield, but they successfully waged a campaign to defeat America by exploiting its own political system.

Culture and psychology influence the types of strategy people adopt, as well as their willingness to engage in them. While most armies in the Second World War devoted time and resources to avoiding and disarming landmines, Soviet commanders cleared minefields by marching their own infantry through them. Culture and psychology organisation play an equally important role in shaping people's economic behaviour – and, thus, their access to strategically significant resources. For these reasons, influential strategic thinkers acknowledge that it is impossible to understand strategy without studying the human context in which it takes place.

When one investigates the role of culture and psychology in strategy, one encounters a third factor – that of politics. The reason the North Vietnamese were able to frustrate US military policy 'on the streets of New York' is that America is a democracy. One of the reasons Soviet commanders were able to get away with marching their own troops through minefields is that their country was not. Not only did the fact that America is a democracy force national leaders to pay attention to public opinion, political thinkers, from Immanuel Kant to (among others) Francis Fukuyama, have suggested that democratic political systems reduce their citizens' willingness to tolerate certain kinds of war. Undemocratic political systems typically attempt to condition their people to adopt certain attitudes towards war as well, sometimes with more success than others.

Carl von Clausewitz summed up the significance of culture, psychology and politics in his famous statement that war is 'merely' a 'continuation of political intercourse' in all its social and personal complexity.[1] Elsewhere, he emphasized that 'war should never be thought of as *something autonomous*' [emphasis in the original].[2] According to Clausewitz, there is no one phenomenon called war. Different wars waged under different social and political circumstances are fundamentally different things.

Strategists and government

In principle, Clausewitz's statesman and commander do not always have to resign themselves to the sociopolitical circumstances they find themselves in. Leaders may attempt to modify these factors through means ranging from giving their troops patriotic speeches to instituting new laws designed to prepare the country for war. Certain political movements have even attempted to use the powers of government to reprogramme citizens' minds. The authorities in the USSR, for instance, spoke of creating a New Soviet Man. For these reasons, any discussion of human factors in strategy must overlap with discussions of the role of the armed forces in national government.

There often appear to be strategic advantages in giving the armed forces a large role. Nevertheless, it is dangerous for a country to allow the military to become too deeply involved in broader political issues. States that fail to separate the role of the armed forces from the role of civilian government risk evolving into dictatorships. Perhaps because of his experience as a general, US president Dwight Eisenhower was acutely concerned that what he called the military–industrial complex would deprive American citizens of their freedom. Undemocratic governments face, if anything, even greater dangers from their own armed forces. Of all Hitler's enemies, the ones who came the closest to assassinating him were German officers who felt that he was mismanaging strategy.

One may counter that people who lose wars are also at risk of losing their preferred systems of government. For this reason, practically all states grant the armed forces more political influence in wartime. Certain strategic thinkers have gone further and suggested that, no matter how much people might want to have a civilian government with the power to control the military, they cannot afford to do so. This idea was particularly popular among the total war theorists of the 1920s and 1930s.

British strategist J. F. C. Fuller, whose ideas about how to use tanks and aircraft anticipated the so-called Blitzkrieg campaigns of the Second World War, summed up what many of these theorists believed about the relationship between strategy and politics. 'War to-day is total,' Fuller begins, 'therefore it includes everything, therefore it influences everything, and therefore, in turn, it is influenced by everything.' This led him to conclude that parliamentary systems of government should be 'rationalised' by being transformed into dictatorships.[3]

Those who believe in liberal democracy (or other political ideals) might respond that, even if dictatorships have a military advantage, other systems of government are inherently worth preserving. American revolutionary Benjamin Franklin expressed this point

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with the line 'they who can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety'. Moreover, military governments have not proved as strategically effective as total war theorists such as Fuller expected them to be.

The army officers who governed Argentina from 1976 to 1983 provide an example of how badly military governments can mismanage strategy. Argentina's economy deteriorated under their rule. This undermined the country's ability to maintain its military over the long term. Then, in April 1982, general and head of state Leopoldo Galtieri ordered his armed forces to invade the British-held Falkland Islands.

Galtieri's timing was abominable. When Argentina attacked, the British government had recently announced plans to cut its naval forces. If Galtieri had waited for the cuts to take place, he would have faced a weaker opponent. Moreover, had Galtieri waited, his own forces would have been better equipped. One of Argentina's most effective weapons systems was the air-launched Exocet anti-ship missile. One of Argentina's key handicaps was that its pilots had only five operational Exocets at their disposal. At the time when Galtieri attacked the Falklands, Argentina was waiting for French technicians to outfit its forces with nine additional Exocets.

Having occupied the islands, Galtieri's regime rejected further opportunities to improve his forces' capabilities. Had the general ordered his troops to extend the airstrip outside the Falkland capital of Port Stanley by 2000 feet, Argentina would have been able to operate a wider range of combat aircraft over the war zone. Extending the runway was unlikely to have required more than a week, and Argentina's armed forces had sufficient materials and trained engineers to carry out this project sitting idly on the mainland. Instead of improving the runway, Galtieri chose to use his country's transport aircraft to garrison the islands with the maximum possible number of lightly armed conscript infantry. The size of this garrison made it difficult to supply, its lack of heavy weapons made it vulnerable, and its reluctant troops proved inferior to British professionals.

Argentina's military government also neglected to prepare its troops for the islands' harsh climate, wasted opportunities to strengthen its army's defences against a British attempt to retake the islands, failed to work out an effective system for achieving cooperation between its navy and air force and used its resources unimaginatively in combat. Within a month, a British taskforce arrived to recapture the Falkland Islands. Although the British and Argentinean contingents appeared similar in numbers and in the quality of their equipment, Britain won a decisive victory, retaking the islands and killing approximately three of Argentina's troops for every soldier it lost of its own. Galtieri and his subordinates gave up control over Argentina's government the following year, turning their power over to a democratic regime.

Researcher Samuel P. Huntington argues that Galtieri's failings are typical of military officers who attempt to govern. Huntington's study remains one of the most influential works on the nature of the military profession, and on the relationship military officers should have with civilian politicians. Politics and military strategy demand different skills and reward different mental attitudes. Few people can be effective at both at once. Moreover, when military officers do politicians' jobs, they almost inevitably end up disagreeing over political issues. This undermines their ability to work together in the way soldiers, sailors and fliers must.

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Another reason why few strategic theorists recommend large-scale programmes to change friendly governments and societies is that few practising strategists have the opportunity to put such programmes into action. Certain well-connected military officers or other officials may be able to take over their own government in a coup. Leaders of a victorious revolutionary movement may be able to force their country's inhabitants to accept a completely new way of life. The overwhelming majority of all military commanders and civilian strategists go through their entire careers without getting the chance to do either of these things. Moreover, some aspects of human psychology and national culture are impossible to change through political means, even for the most powerful revolutionary leader.

Furthermore, staging a successful coup or revolution is likely to involve enormous costs and risks. Foreign enemies may well take advantage of the new regime's weakness. Therefore, although it is theoretically possible to achieve strategic advantages by transforming one's own political system, strategic thinkers normally find it wiser to take a more modest approach. Few would deny that military officers and civilian strategists need some cooperation from their government in order to do their job effectively. Nevertheless, most contemporary strategic theorists would agree that strategists should accept civilian control.

Neither, most strategic thinkers would add, can means be given priority over their purpose. To do so, as the saying goes, is to put the cart before the horse. For these reasons, the rest of this chapter will focus on relatively fixed aspects of culture and psychology. Although large-scale attempts to reengineer society by putting the armed forces in charge of its government are part of the human context of strategy, what remains of this chapter will pay comparatively little attention to them.

Culture and strategy

People from different cultural backgrounds appear to have distinctive attitudes towards war and strategy, and to behave accordingly. The fifteenth-century political thinker Niccolò Machiavelli lamented that, although his fellow Italians were courageous as individuals, they had little aptitude for organised warfare. Five hundred years later, the Italian military suffered from much the same handicap in the Second World War. In similar fashion, one may generalise that American strategists characteristically rely on overwhelming their enemies with fire power, that Russian military commanders characteristically rely on overwhelming their enemies with superior numbers of troops and that British national leaders prefer to use their navy rather than their army, simply to pick three examples of frequently valid cultural generalisations.

One may find exceptions to all such claims. Not only is it unfair to judge people based on cultural stereotypes, it can be a fatal mistake. Before the Second World War, some American military thinkers assumed that the Japanese were nationally incapable of developing effective air forces. Japanese pilots proved them wrong at Pearl Harbor.

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Box 2.1 **Dysfunctional strategic cultures**

One of the most spectacular examples of a dysfunctional strategic culture is that of fifteenth-century China. In the 1200s the Chinese developed naval forces, shipbuilding technology and an extensive overseas trading network, partially because Mongol invaders had deprived them of their inland sources of wealth. When the Mongols conquered China, they maintained China's fleet and maritime industry so that they could use it themselves. Mongol ruler Kublai Khan compelled his Chinese and Korean subjects to build the ships for his ill-fated invasion of Japan. The Mongols also used Chinese ships to collect tribute from remote provinces of their empire, and, in 1329, these offerings amounted to a record 247,000 tons of cargo.[4]

In 1368 Chinese patriots drove out the Mongols and re-established an independent Chinese state, ruled by the emperors of the Ming Dynasty. The first Ming rulers continued to encourage maritime trade and to commission militarily powerful imperial fleets. Chinese ships of this era were more seaworthy and more capable in battle than their European counterparts. China's period of maritime supremacy reached its zenith when Emperor Cheng Zi dispatched a court eunuch named Cheng Ho to lead a fleet of so-called 'treasure ships' on a series of voyages to the Indian Ocean.

Cheng Ho defended Chinese colonists living in Sumatra, convinced the rulers of numerous countries to offer submission to China and, on one voyage, overthrew the ruler of Ceylon. Each time he returned to China, his 'treasure ships' arrived laden with valuables, medicines, exotic animals and novelty items for the emperor. Meanwhile, other Chinese admirals suppressed the *wokou* pirates who plagued Asian coasts during this period. Chinese diplomats compelled the Japanese rulers to help them against the *wokou* by threatening to invade Japan. The fact that the Japanese took their threat seriously indicates both that China's fleets were powerful and that Chinese rulers were able to use those fleets to strategic advantage.

Nevertheless, cultural factors made it difficult for China's rulers to embrace their empire's status as a maritime power. Chinese moralists traditionally urged rulers to live simply, avoid warfare and devote state resources to helping the common people. These moralists also warned against any activities that brought Chinese people into contact with foreign barbarians and encouraged them to take up barbarian ways. Such moralists could easily depict the 'treasure ships' as aggressive, extravagant and corrupting. Moreover, a faction within the Chinese government had an interest in portraying maritime activities this way.

The scholars who managed China's bureaucracy were traditional rivals of the eunuchs who made up the Emperor's personal staff. Since the eunuchs controlled the 'treasure ships' the scholar–bureaucrats opposed the 'treasure ship' programme. From the early 1400s onward, the scholars used the moral arguments mentioned here to convince a series of rulers to impose progressively more restrictive limits on sailing and shipbuilding. In 1525 the scholars convinced the

emperor of the time to ban all ships with more than one mast, and, in 1555, the imperial court decreed that setting sail in an oceangoing ship was a crime equivalent to espionage.

With no Chinese navy to suppress them, the *wokou* flourished. Raiders harried China's coasts practically at will. Over the centuries China's rulers relaxed the anti-shipping laws, but the population of sailors and craftsmen who had made China a seapower in the early 1400s had gone. Meanwhile, in other parts of the world, maritime technology had advanced rapidly. By the time of the Opium War in 1839–40, Britain's Royal Navy was able to defeat the entire Chinese empire with a squadron of 16 medium-sized vessels.[5]

Crude prejudice is a handicap, in strategy as everywhere else. Nevertheless, the fact that cultural generalisations are unreliable does not mean that they cannot be useful. Strategists never enjoy perfect information. Those who remember the limits of generalisation may be able to use their knowledge of various people's cultures to gain greater insight into what their enemies, their allies and even their own forces are likely to do in critical situations.

Strategic theorist Colin Gray, a pioneer in the study of strategic culture, uses the Battle of Trafalgar to illustrate this point.[6] This battle took place during Britain's wars with Napoleonic France. The French and their Spanish allies had assembled a navy larger than that of the British, putting them in a position to threaten it.

British Vice-Admiral Horatio Nelson decided to strike first. Moreover, he ordered the ships under his command to form columns and sail straight into the opposing Franco-Spanish fleet. This was dangerous, since it allowed the French and Spanish to fire their cannon at the approaching British ships. During the opening phase of the battle, the column formation made it difficult for the British to shoot back.

Nelson's tactic, however, allowed the British to break into the enemy formation and duel Franco-Spanish ships at close range. The British Vice-Admiral guessed, correctly, that his enemies would be unprepared for this type of fighting. Nelson successfully guided his own flagship into combat with the enemy command vessel and crippled it. The captains of the French and Spanish vessels responded individually and ineffectively, allowing Nelson's numerically smaller fleet to destroy them one by one.

Gray notes that the British commander's earlier encounters with French and Spanish sailors had given him reasons to expect that his opponents would react timidly to an aggressive manoeuvre. Nelson could not have been sure that his previous experiences were still valid. The French and Spanish could have learned from their past mistakes. Nevertheless, the British commander had to do something to counteract his enemies' advantages. He took a calculated risk, and it paid off.

Not only do citizens of various countries have recognisable strategic cultures, but so do other groups of people. Those from similar economic backgrounds, for instance, often have similar attitudes even when they come from different parts of the world. Older people often have characteristically different perspectives from younger people. Men typically play different cultural roles in war from women. Professional military

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personnel have a different culture from civilians and short-term conscripts. Officers have a different culture from enlisted personnel. Each branch of the armed services has its own ways of doing things.

One could list many more cultural groups that may have their own ways of thinking about strategy. Moreover, the various forms of strategic culture blend and overlap. Not only is there a French culture, a military culture and a naval culture, the French navy has a culture of its own. A French admiral belongs to all of these cultures at once, and many more. There may be times when the fact that a certain strategist falls into one cultural category is important, and other times when the fact that that strategist falls into other categories makes more of a difference. Those who wish to study the role of culture in a specific strategic situation must decide for themselves which cultures to investigate.

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A history of strategic cultural theory

Military commanders and state leaders have used cultural information in every era, some more successfully than others. Classic writings on strategy mention the role of culture. The ancient Chinese theorist Sun Tzu stressed the importance of understanding the 'thing which causes the people to be in harmony with their ruler' and the earlier Chinese thinker T'ai Kung specifically advised strategists to pay attention to various peoples' differing customs.[7] Nevertheless, nineteenth- and twentieth-century strategic theorists tended to downplay the role of culture.

Since weapons have the same effect on the human body in every culture, many theorists assume that the most effective methods of using them must be the same in every culture as well. The same point seems to apply to all other instruments of strategy. If certain groups of people have customs that prevent them from choosing the most effective methods, they are likely to lose wars to less squeamish enemies, and their customs are likely to disappear. For these reasons, military scholar Michael Handel suggests that the 'logic of war' is as universal as the 'laws of gravity'.[8] People from different cultures may learn to apply that logic in different ways and at different speeds, but just as apples fell to the ground the same way long before Newton developed his theories, strategy works the same way at all times and in all places.

This way of thinking implied that it was more useful for theorists to figure out how to solve strategic problems effectively than it was for them to spend time worrying about how people from other cultures might approach similar problems. During the Cold War, however, theorists studying nuclear strategy concluded that this might not always be true. Since practically everyone wished to avoid nuclear war, most western theorists agreed with thinker Bernard Brodie's observation that the main goal of nuclear strategy had to be that of preventing such a war from breaking out in the first place.[9] This meant that the most effective policies for building and deploying nuclear weapons were not automatically the ones that would inflict the most damage on the enemy – the most effective polices were the ones that convinced potential enemies to do certain things – or not to do certain things – without either side actually needing to fight. To these thinkers, nuclear strategy was primarily psychological.

At first, most strategic thinkers continued to take the position that the principles of

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strategy were universal. No one, these theorists reasoned, could fail to understand the importance of avoiding nuclear annihilation. As long as state leaders understood that they could not use nuclear weapons without suffering a nuclear attack in return, this logic implied, those leaders would refrain from doing so. There might be exceptions in certain extreme situations – such as one in which leaders in one country feared that, if they did not launch a nuclear attack, a potential enemy might strike first and utterly destroy them before they had the chance to respond. There might also be a grey zone of limited warfare in which both sides used nuclear weapons in small numbers while continuing to deter each other from using them in an all-out strike. This way of thinking suggested that, in nuclear matters at least, all state leaders would respond to similar situations in similar ways, regardless of their personalities, political ideas – and culture.

Brodie himself rejected this point of view. His belief that human psychology always includes complex emotional and cultural elements alienated him from many of his colleagues. By the 1970s, however, increasing numbers of theorists began to write about the importance of culture in strategy. In 1977, for instance, Jack Snyder published a report titled *The Soviet Strategic Culture: Implications for Limited Nuclear Operations*. Snyder noted that, even if Soviet and American leaders shared the same desire to avoid total destruction in the realm of theory, their cultural backgrounds led them to interpret political and military situations differently in practice.

That meant that a nuclear policy that would deter the USA from using nuclear weapons might not deter the USSR. That also meant that American leaders who presumed that they could use small numbers of nuclear weapons against the Soviet Union and expect their opponents to respond in an equally restrained fashion might be taking an even greater risk than other theorists had warned. Soviet leaders, thinking from a Soviet cultural point of view, might well interpret the limited American strike as a prelude to an all-out attack and respond accordingly.

Other theorists, notably Colin Gray, David Jones, Carnes Lord and Kenneth Booth, explored the strategic significance of culture further. Their efforts prompted an academic debate on how to study strategic culture most effectively. China scholar Alastair Iain Johnston warned that it is all too easy to use intangible concepts such as culture as an excuse for fuzzy thinking.[10] Johnston urged theorists to propose specific ways in which they believed that specific countries' culturally held ideas would cause those countries to behave. This would make it possible to apply a variety of formal social science research techniques to determine whether strategists from those countries actually do what the cultural theorists predicted they would do.

Johnston himself used such techniques to test the widely accepted proposition that Chinese strategists have a cultural disdain for violence that causes them to refrain from aggressive policies even when such policies might help them achieve their goals. Johnston's work indicated that the proposition was wrong, and that, in fact, Chinese culture encouraged state leaders to achieve their ends through violence. Johnston was undoubtedly correct to conclude that Chinese strategists have advocated aggressive policies in numerous historical periods. Other sinologists, however, noted that Johnston's use of painstakingly designed research methods had not made his findings any more definitive than less formal approaches to studying China.[11]

Research methods are only as good as the data one applies them to. China scholar

Arthur Waldron pointed out that Johnston had studied only one body of ideas in Chinese political and strategic thought. Had he studied different thinkers and different historical periods, his methods might have produced different results. In fact, Waldron noted, the Chinese themselves have discussed the pros and cons of aggression throughout their history. Although Johnston had hoped his methods would allow him to answer questions about strategic culture objectively and definitively, Waldron found that he had merely contributed one more subjective and partially fuzzy argument to what will probably turn out to be an endless debate.

Other strategic culture theorists added that Johnston's attempt to separate cultural influences from other factors that affect strategy was doomed to fail.[12] Culture, these theorists argued, interacts with all the other components of strategic behaviour. British leaders have not tended to rely on naval power purely because their country has a maritime culture – British leaders have relied on naval power because Britain is an island, because large land armies are expensive, because they tend to inherit strong navies from their predecessors and for a wide variety of other reasons – one of which is, indeed, culture. Culture reinforces British leaders' other motives for choosing to use naval power. The other factors that incline them to choose naval power, in turn, have helped shape British strategic culture.

Johnston was right to say that, unless thinkers distinguish cultural influences from the other factors that affect strategy, nothing they say about strategic culture can ever be certain. To this, traditional strategic culture theorists would repeat that nothing in strategy ever is. Traditional theorists doubt that any research technique can replace human judgement. What one calls judgement may be what another calls fuzzy thinking, but traditionalists suggest that it is the only tool for studying strategic culture that we actually have.

What culture can tell us

Although the traditional strategic culture theorists do not believe that it is possible to separate culture from the other factors that influence strategy, they have proposed ways in which cultural knowledge may help one to analyse strategic affairs. Gray begins by pointing out that it is impossible to understand anything whatsoever about strategy without considering the cultural element.[13] Strategy is a human activity. Human beings learn everything they know within the various cultures they belong to. Therefore, people choose goals, make plans, respond to new developments and perform activities in cultural ways. By the same token, anyone who wants to study strategy would be wise to remember that s/he is doing so from his or her own cultural perspective, and that people from other backgrounds may perceive the same situations differently.

Studying culture also gives analysts specific insights into strategic behaviour. Gray notes that strategic culture 'expresses comparative advantage'.[14] By this, he means that people from one culture may be better at performing certain activities than people from other cultures, even when both start with the same resources and opportunities. Britain's Special Air Service, Special Boat Service and other elite units are consistently more effective than their American counterparts, even though American special forces have similar training and gear. German armies typically perform better than equally sized

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and equipped ground forces from other countries, to note another example, but German navies tend to be at a disadvantage.

One reason why different peoples develop different cultural strengths and weaknesses is that external factors such as geography reward them for doing so. Germany's location in the centre of Europe, to continue the previous example, has ensured that German states frequently shared land borders with potential enemies. Over time, the organisations responsible for maintaining German states' ground forces had more opportunities to develop effective techniques. German states' most dedicated and capable military thinkers have normally found better career opportunities in the ground forces. These thinkers trained their successors to do the things that worked well for them.

Gray adds that people cannot change their cultural perspective simply because it would be useful for them to do so.[15] It would be impossible for German strategists who learned about war in a culture that emphasizes ground forces rapidly to transform themselves into the mental equivalents of British strategists who learned about war in a culture that emphasises navies. German strategists may adapt what they know about land combat to fight at sea, and they may even win naval battles, but they will continue thinking and acting according to their culture. The less time people have to prepare for a culturally unfamiliar strategic challenge, the more likely they are to fall back on traditional approaches.

Dysfunctional strategic cultures

Those who claim that the principles of strategy are universal remain right about certain points. Some approaches to solving strategic problems are more effective than others. Since culture influences both the approaches leaders choose and the way in which subordinates put leadership decisions into practice, it would seem to follow that some strategic cultures are inherently superior. The same logic suggests that other cultures are dysfunctional. There are certainly cases in which cultural inclinations seem to have prompted strategists to adopt foolish policies.

Many cultural traits that seem dysfunctional in some circumstances can promote effective behaviour in others. Gray illustrates this point by discussing the widely observed American cultural tendency to seek technological solutions for every problem.[16] When this cultural tendency inspires Americans to develop and use effective new technology, it is functional. When this cultural tendency inclines Americans to neglect the hard work of addressing complex issues that lack a 'quick fix', it is not.

For this reason, it is difficult to assess the overall effectiveness of any strategic culture. The fact that people with seriously dysfunctional attitudes towards strategy tend to lose wars allows one to assume that any strategic culture that has survived for more than a few generations is at least minimally functional. People may also manage to sustain flawed strategic cultures when they possess other advantages that compensate for their dysfunctional cultural attitudes. Gray, for instance, suggests that dysfunctional elements of Russia's strategic culture caused Russian armed forces to collapse in 1917, 1941 and, with less bloodshed, 1989.[17] Non-cultural factors such as Russia's climate, geography and population allowed the Russian state to recover from these catastrophes.

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In the early twenty-first century, some western military writers have started to ask whether their own strategic culture is still functional. The US Army's 2004 Campaign Plan calls on American armed forces to transform their institutional culture in order to take full advantage of what theorists have called the (or a) revolution in military affairs. Retired American Colonel Ralph Peters expresses broader concerns about western society in general. Peters notes that, despite the vast fire power of western armed forces, warriors from cultures that encourage such practices as suicide bombing can, in his words, 'hamstring' western nations.[18]

Peters goes on to speculate about a war between the People's Republic of China and the United States. Americans, he warns, 'conditioned to levels of comfort unimaginable to the generation that fought World War II would balk at the sacrifice war with China would require of them'. Elsewhere, he asks 'which population would be better equipped, practically and psychologically, to endure massive power outages, food-chain disruptions, the obliteration of databases and even epidemic disease?' Although Peters does not prescribe detailed measures for reforming western culture, he suggests that censorship might help.

Meanwhile, Gray, who helped to revive the idea of strategic culture in the 1970s and 1980s, cautions twenty-first-century military thinkers against taking the idea too far. Culture is only one of the factors that influences strategy, he warns, and it is not always the most important one.[19] Moreover, culture is difficult to interpret effectively. Those who are dissatisfied with a strategic culture – whether their own or somebody else's – will find that culture is normally difficult to change. To ignore strategic culture is to ignore the fact that strategists are human beings, but to look to strategic culture theory for easy solutions is to set oneself up for failure.

Morale and combat effectiveness

Throughout history, epics and chronicles have celebrated the courage of warriors. The earliest writings on strategy recognise that fighters who possess mental attributes such as bravery and willingness to obey orders are invaluable in battle, whereas those who lack them are useless. Ancient Chinese works suggest numerous steps commanders can take to instil such traits in their troops. These writings advise commanders to win soldiers' trust through personal attention, pay attention to soldiers' physical needs and enforce consistent standards of discipline.

The ancient Chinese also recognised that people think and behave differently while under the stress of warfare than they would in even the most demanding of civilian activities. Sun Tzu (ca. 500 BC) suggested that commanders can take advantage of this fact by putting soldiers in situations that force them to fight well: 'For it is in the nature of soldiers to resist when surrounded, to fight to the death when there is no alternative, and when desperate to follow commands implicitly.'[20] Other ancient Chinese writers observed a potential drawback to such methods. Even the bravest and best trained soldiers, they noted, have a psychological breaking point.[21]

Clausewitz added that it is a mistake to romanticise either the experience of combat or the traits of effective soldiers.[22] It is not, Clausewitz continues, that scenes of glory, bravery and thrilling excitement are mythical. Such moments occur. Nevertheless, they

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are rare, and come 'like a medicine, in recurring doses, the taste diluted by time'.[23] Moreover, those who have not experienced war can never fully understand what combat is like. For that reason, they can never fully understand how soldiers will react to it. In battle, 'the light of reason is refracted in a matter quite different from that which is normal in academic speculation'.[24]

Despite Clausewitz's warning, twentieth-century academics in fields ranging from sociology to military history have investigated the psychology of combat. Data from the Second World War suggest that mythmakers are at least partially right to emphasise the importance of heroes. The same data suggest that ancient strategists were right to suggest that military leaders can deliberately cultivate heroism. In the Second World War, airborne troops recurrently outperformed soldiers from more mundane branches of the armed forces.

One vivid example of this was the German parachute assault on Crete in 1941.[25] The Greek and British forces defending the island outnumbered the Germans. Greek and British forces also possessed tanks, trucks and artillery. The Germans, by contrast, were unable to deploy any equipment heavier than a light mortar until they captured an airfield. Moreover, the British had intercepted and decrypted the German troops' orders, which came by radio.

Therefore, the Germans had to drop from the air into the middle of a larger and better equipped force that knew exactly where they were going to land and had enjoyed ample time to prepare. Nevertheless, the German airborne forces not only captured Crete but inflicted more casualties than they suffered. Airborne troops typically receive more rigorous training than their comrades in other units. Paratroopers perceive themselves as elite, and commonly enjoy a high degree of *ésprit de corps*. Parachute units also frequently have the luxury of setting higher standards for their recruits. The case of Crete suggests that these factors make parachute troops braver, fiercer and more resilient.

Clausewitz was right, however, to warn that the 'taste' for heroism becomes 'diluted' with prolonged or frequent exposure. Data from the Second World War also indicate that the stress of combat wears troops out over time. Most people proved able to fight effectively for 200–240 days.[26] After that time, in the words of one study, a soldier becomes 'so overly cautious and jittery that he [is] ineffective and demoralizing to the newer men'.[27] The same study found that approximately 2 per cent of all soldiers are able to resist the stress of combat for much longer periods. Members of the hardy 2 per cent seemed to have a wide range of personalities, but the survey noted that many appeared to be 'aggressive psychopaths'.[28]

Combat motivation and unit cohesion

Since aggressive psychopaths are prone to disobedience and unlikely to cooperate effectively with others, they are of limited use to strategists. Nevertheless, other Second World War-era research highlighted the difficulties in motivating psychologically normal people to fight. Historian and US Army general S. L. A. Marshall presented the results of one particularly influential study in his work *Men Against Fire*, originally published in 1947. Marshall claimed that only 15 per cent of American soldiers fired

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their weapons at the enemy.[29] The US Army Air Corps observed a similar phenomenon with pilots. Fewer than 1 per cent of American pilots accounted for between 30 per cent and 40 per cent of enemy aircraft destroyed.[30]

The men who failed to shoot were not necessarily cowards. Most obediently marched into places where enemy troops could shoot at them. Nevertheless, even in combat, they were at least subconsciously reluctant to kill. Marshall advised commanders to watch their troops in battle and urge the non-firers to use their weapons, but he recognised that this was only a partial solution.[31] If armies were to achieve higher levels of effectiveness, they needed to find some way of breaking down soldiers' psychological resistance to killing.

Marshall also explored the factors that motivate soldiers to take avoidable risks and make extraordinary efforts. In his view, belief in higher causes and loyalty to 'buddies' both played indispensable roles. Belief in higher causes, Marshall argued, encourages troops to remain steadfast over long periods.[32] Personal relationships motivate military personnel in the tumult of combat.[33] Other influential studies based on Second World War data suggested that comradeship outweighed all the other factors that inspire troops to fight. When social scientists Edward Shils and Robert Janowitz interviewed veterans of the German Army, for instance, they found that personal relationships were considerably more important in determining whether a German unit would fight effectively than any soldier's opinions about Adolf Hitler.[34]

The emotional bonds that hold a military unit together became known as 'cohesion'. Military personnel form the most cohesive groups with the comrades they know best. Early research into unit cohesion suggested that strategists do not need to place a high priority on convincing their own side's military personnel that their cause is just. Strategists must, however, encourage the processes by which fighters form comradeship bonds.

The studies of unit cohesion seemed to connect with Marshall's findings about the difficulty of getting soldiers to fire their weapons. Military culture often seems harsh, brash, disdainful of outsiders and resistant to change. Research into unit cohesion suggested that this culture – despite its unpleasantness – might be vital to building effective comradeship bonds. Marshall's work suggested that this culture might be equally vital to encouraging military personnel to do their most important job.

A strategist who accepted these conclusions would probably be sceptical of attempts to change military tradition for social and political purposes – by abolishing brutal training practices, for instance, or by expanding the role of women. Such a strategist would also probably be reluctant to train or use military personnel for operations that threaten to erode aggression and comradeship. Policing former war zones, for instance, requires military personnel to exercise unusually high levels of restraint with their weapons. Such operations are also exceptionally likely to put personnel in a position where they must sacrifice comrades to protect foreign civilians. Traditionalists in the US Army have often used such points to justify an attitude that General John Shalikashvili summarises with the phrase 'real men don't do peacekeeping'.[35]

Shalikashvili himself sees this attitude as misguided. When armed forces become reluctant to 'do peacekeeping', they become less useful to the states and people they serve. This point has attracted special attention since the end of the Cold War, because

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the powerful states of this period have been more interested in maintaining order in troubled parts of the world than in fighting all-out wars against their military equals. People in these states have also become increasingly reluctant to inflict casualties, even on their enemies. Nevertheless, even in the midst of an unrestrained conflict such as the Second World War, all combatants faced the task of policing conquered territories, and this required them to achieve some level of cooperation with the population.

Therefore, one should note that there may be more than one way to motivate military personnel. In fact, the Second World War-era studies on combat behaviour and unit cohesion may not be as reliable as military commanders initially believed. When Marshall studied the Korean War, he found that almost four times as many American troops – 55 per cent – were firing at the enemy.[36] Later studies showed that between 90 and 95 per cent of American soldiers fired in Vietnam.

One reason why American soldiers proved more willing to shoot in Korea and Vietnam may be that the US Army introduced new training methods designed to make them more aggressive. These methods ranged from having soldiers fire at human-shaped targets when learning to use their rifles and requiring recruits to chant 'kill, kill, kill' while running. One author suggests that these practices had the side effect of making soldiers more vulnerable to psychological damage.[37]

Another reason why soldiers since the Second World War appeared more willing to use their weapons may be that Marshall's original study was misleading. Although Marshall claimed to know the percentage of troops who fired at the enemy, he had not attempted to sample a statistically representative cross-section of US Army personnel. Instead, he had interviewed somewhat arbitrarily selected groups of soldiers. Moreover, eyewitnesses report that he did not routinely keep detailed records of his interviews. Therefore, one must conclude that he based much of his work on his potentially unreliable memories and impressions.

Immediately after the 2003 Iraq war, a team of US Army researchers interviewed American troops, western reporters and Iraqi prisoners of war to test the Second World War findings on cohesion and motivation. Unlike Marshall, these researchers used a structured interview format and kept detailed records.[38] This study confirmed the fact that personal relationships within military units play a critical role in motivating soldiers to fight. Nevertheless, American combat veterans of 2003 also reported fighting for idealistic reasons.

Even in the heat of battle, those veterans claimed that they took courage from their belief that they were liberating the people of Iraq. Research by scholar and former military intelligence officer Paul F. Robinson documents his argument that idealistic codes of honour have motivated soldiers in combat throughout history.[39] This fact is not necessarily reassuring. Robinson adds that these codes have taken different forms in different periods, and that many of them actually encouraged avoidable brutality.

Robinson's research, like the studies of combat motivation in 2003, suggests that it would be a mistake to assume that the factors that inspire military personnel to fight well are the same in all times and places. At a minimum, this suggests that strategists must pay attention to the particular factors that affect personnel in the particular forces that interest them. This even suggests that it may be possible to inspire military personnel to respond to new forms of motivation. With the proper leadership, perhaps, real

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men can learn to do peacekeeping. The methods of getting them to do so, however, remain uncertain.

Conclusion

Studying the human context of military operations can sensitise strategists to possible dangers and alert them to possible opportunities. The nuclear strategists who deliberately ignored strategic culture, for instance, risked catastrophically misunderstanding the ways in which Soviet leaders might respond to western actions. Nelson, by way of contrast, assessed his opponents' culture accurately and used his assessment to choose effective tactics in a strategically critical battle. The various studies of combat motivation suggest less dramatic ways in which armed forces might train and deploy troops to maximum effect.

Just as strategists handicap themselves when they ignore human factors, they risk serious mistakes when they confuse common assumptions about culture and psychology with proven facts. The second error is particularly dangerous for those who are bold – or arrogant – enough to advocate radically changing society and government in order to achieve strategic advantages. One cannot understand strategy without considering its social and psychological dimensions. Nevertheless, in applying ideas about the human dimensions of strategy, one must exercise caution.

Key points

1. To make strategy effectively, one must account for the culture and psychology of the people involved in the process. These people may include military personnel, the civilian population and other, more specific groups.
2. Governments can coerce people to behave in prescribed ways. Under certain circumstances, governments may be able to motivate people to adopt new ways of thinking. Therefore, attempts to address the cultural and psychological side of warfare overlap with politics. Nevertheless, it is seldom wise – let alone moral – for military commanders to seek direct control of the government for strategic purposes.
3. People from different cultural backgrounds appear to have distinctive attitudes towards war and strategy, and to behave accordingly.
4. Few human beings can perform effectively in combat for more than approximately 240 days.
5. Interpersonal bonds within military units play a powerful role in determining how bravely and aggressively the members of those units fight.
6. Despite the importance of culture and psychology in warfare, strategic thinkers have often overstated and over-simplified their influence.

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Questions

1. **How can strategists best exploit cultural and psychological factors?**
2. **How can strategists apply cultural knowledge most effectively?**
3. **How can strategists best use elite military units?**
4. **How much should armed forces change to conform to new social expectations?**

Further reading

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3 The ethics of war

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Reader's guide: Perspectives in ethics: consequentialism and deontology; realism and ethics; the 'just war' tradition (jus ad bellum and jus in bello); the laws of war; strategic necessity.

Introduction

The subject of ethics, much like that of culture, holds a somewhat awkward position in the world of strategy. Since humans are moral beings, ethics must have an influence on strategy. And yet, since the latter is a rational activity, the seemingly emotional and subjective world of ethics may be regarded as an unwelcome interloper in the process of strategy. Or as Bernard Brodie notes: '[T]he strategic writer . . . will normally regard moral considerations as tiresome impediments to the flow of one's thoughts.'[1] As noted in the Introduction to this book, strategy is a complex, uncertain and competitive activity. Ethical concerns merely seem to further complicate the job of the strategist. However, ethics is not something the modern strategist can ignore. Ethics has become an increasingly important issue as war has come under ever more complex legal and moral scrutiny. The laws of war, which are based on longstanding ethical traditions, have developed substantially since the second half of the nineteenth century. Taken together, ethics and law are central components of what Michael Walzer calls the 'war convention'.[2]

Since this volume is primarily concerned with understanding the nature of strategy and best practice, this chapter will conclude with an analysis of how strategists can incorporate an ethical dimension into their practice, while still seeking to achieve their policy objectives. However, before that can be done the basic foundations for ethics must be understood. It is also important to understand the realist take on the role ethics plays in international politics. Since strategic studies is heavily infused by realism, it is important to understand how the latter views ethical issues. It will become clear that tensions exist between some of the core demands of ethics and the realist school of thought. In order to understand how some of these tensions can be mitigated, the chapter will outline the 'just war' tradition, which seeks to reconcile the need for war in international politics with ethical concerns. The just war tradition is reflected in the modern laws of war. It will be argued that although the laws of war provide a reasonably balanced and sensible approach to the regulation of armed conflict, modern interpretations and use of them has become increasingly problematic from the perspective of best practice. It is this that

creates the need for a strategy-centred approach to the subject of ethics and war. This new approach is best described as 'strategic necessity', and will form the conclusion to this chapter.

Perspectives in ethics

If you think strategy is complex, you should try ethics. The problem with ethical standards is that, like the proverbial opinion, everyone has one. Moral relativism is a genuine headache for the subject of ethics. In a world of many diverse cultures, it is to be expected that different ethical standards exist. Are they all equally valid, or is it possible to identify a dominant set of ethics that has greater legitimacy? Indeed, is it desirable to attempt to elevate one set of moral standards above all others, and then attempt to apply them universally? Such an enterprise has been labelled ethical imperialism.[3] Nonetheless, despite the challenge of moral relativism, certain writers have identified a set of common values that appear to apply across most cultures. This 'overlapping consensus', to use John Rawl's terminology, includes key principles, such as prohibition against murder and torture and the innocence of children.[4]

Box 3.1 **Ethical perspectives**

Consequentionalism

Moral value of an action based on balance of consequences
Choose actions that produce the greatest good
Torture may be valid if it saves lives
But are some actions intrinsically wrong?
How do you judge balance of outcomes?

Deontology

Duty based
Certain actions are right or wrong, regardless of consequences
Human beings should not be regarded as means to an end
Who defines what is right and wrong?
What if rights or duties clash?

Although some form of consensus can be identified, how it is constructed, interpreted and applied is not necessarily straightforward or universally agreed on. There are differing approaches to this question, two of which dominate discussions on the ethics of war: consequentialism and deontology. The former judges the moral value of an action based on its consequences. Generally speaking, if the consequences of an action produce greater good (or happiness in utilitarian terms), then it will be regarded as the right thing to do. From such a perspective, it may be legitimate to sacrifice one innocent life in order to save five, assuming that it is the only way to achieve said outcome.

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In the field of security, a consequentionalist may argue that it is right to torture a terrorist suspect in order to extract information from him that will prevent a future atrocity. While there is much to recommend this approach to ethical dilemmas, there are some obvious problems. To return to our first example, it seems intrinsically wrong to value human life in such stark quantifiable terms. One could argue convincingly that the innocent human life sacrificed to save others has as much value and right to existence as any other. Therefore, on what moral grounds can the basic right to life be removed? Another problem with the consequentionalist position is that it is not always easy to predict the balance of outcomes. To return to the terrorist example: how can we know in advance that the information extracted from torture will prevent an attack and save lives? In such a case, it is possible that the ethical boundary of torture will be breached with no positive consequences.

In contrast to consequentionalism, based as it is on the balance of outcomes, deontology rests on the notion that certain actions are right or wrong, regardless of their consequences. Deontology is a duty-based approach to ethics. One of the most important proponents of this approach is Immanuel Kant. For Kant, certain duties were unconditional and absolute. From this basis, Kant argues that there are categorical imperatives, or commands to act in certain ways. One of the most important of these imperatives is to treat other humans as ends in themselves, and not as means to an end. So, to stick with our examples, it is always wrong to take an innocent human life or to engage in acts of torture, even if in doing so many other lives are saved. Or, to put it another way, the action is judged on its own merits: the ends can never justify immoral means.

On initial examination, the deontological approach appears to be clear and straightforward. However, this is not the case and some troublesome questions and difficulties can be identified. One obvious question relates to the source of fundamental principles: who decides what is inherently right and wrong? For some, the answer to this question is God, but this answer will not convince everyone. In the absence of God, who should take the role of moral architect? Another flaw in deontology is that ignoring the consequences of an action potentially allows evil to triumph. For example, during the Second World War, a deontological perspective may have prohibited certain Allied military operations (such as morale bombing) because they could be regarded as intrinsically wrong (in the case of morale bombing because it functioned on the infliction of pain against civilians). However, if such actions played an important part in the defeat of Nazi Germany, then disallowing them would have risked ceding victory to Hitler and his allies. In this sense, deontology promotes or denies choices based on right intention, regardless of the context and subsequent consequences. Finally, how does deontology cope with conflicting duties? Nigel Warburton poses the following dilemma for a duty-based approach to ethics. If we have a duty not to lie, but also a duty to protect the life of an innocent, what should we do if a murderer asks us for the location of his next innocent victim?[5] To return to the morale bombing example; which is the greater duty, the defeat of Nazi Germany or the duty to protect innocent life?

In war, where decisions are often made in difficult, complex and uncertain circumstances, it is problematic and limiting for a commander to tie himself to either of these approaches. In this sense, he will benefit from a form of decision making that

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considers both consequentionalism and deontology. This is well illustrated in the doctrine of *double effect* (first articulated by St Thomas Aquinas), which permits actions that are well intentioned and necessary, yet still have foreseeable negative consequences. For example, a bombing mission targeting an important military facility would be permissible even though civilian casualties could be anticipated. In the making of such a decision, the deontological approach is evident in that there may be a duty to act and the intention is right (civilians are not the intended target). However, consequentionalism also plays its part in that for such a mission to be considered legitimate the civilian losses must be proportionate to the expected gains. If proportionality can be achieved, then the cause of greater good can be served. Although the doctrine of double effect has a certain moral logic, it is still open to different interpretations. Michael Walzer, for example, argues that it is not sufficient merely to apply the principle of proportionality. Rather, he calls for evidence of positive steps taken to avoid civilian casualties.[6] Invariably, making decisions such as this, especially when they include such concepts as proportionality, is an act of judgement rather than the result of a scientific or quantifiable process. For this judgement to be valid, the commander must consider the context he finds himself in.

Realism and ethics

Having to make an ethical judgement, taking into account context and considering both consequentionalist and deontological approaches, is challenging. And, as noted earlier, the whole enterprise is somewhat undermined by moral relativism. Thus, there appears to be some merit in taking a realist stance and dispensing with serious ethical ruminations altogether.

Realism operates on the basis that the international system is competitive and anarchic, with no governing authority to regulate behaviour. To prosper and even survive in such an environment, state actors must be pragmatic and seek power: 'the capacity of a political unit to impose its will upon other units.'[7] In such a world, and especially in the absence of a legitimate governing authority to provide a secure environment, limiting one's options for abstract ethical reasons is dangerous. For the traditional realist a state's actions must be governed by self-interest, not by some moral code: '[S]tates in anarchy cannot afford to be moral.'[8] In this sense, when evaluating the legitimacy of a war a realist would 'use prudential rather than moral considerations'.[9]

On the surface, it seems that realism has no place at all for ethics. And yet, it has already been noted that ethics plays a part in strategy and international politics simply because humans are ethical beings. This would suggest that for realism to deserve its title it must take some account of ethics. And, indeed, it does. When realism is further analysed it becomes apparent that it deals with ethics in at least three main ways. Although the realist version of the international system is described as anarchic, it is not without notions of acceptable forms of behaviour (rules and norms). As Snyder argues, certain norms underpin the state-centric realist paradigm and act as system modifiers.[10] One such example is state sovereignty. Although these norms may not be inviolable, and are likely to be overridden in times of extreme emergency, they do have a place within the realist paradigm. In fact, Hans Morgenthau (a leading thinker in the realist

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school) goes further and suggests that state actors recognise certain absolute moral barriers in international politics. Morgenthau argues that, from a purely pragmatic perspective, it would be expedient for states to diminish the population of their potential rivals. Reducing a rival's population would diminish an important source of his relative power. However, certainly in peacetime, and even in most wars, states do not enact such a policy. The reason for this, Morgenthau argues, is that there is an agreed moral position among states on the value of civilian life.[11]

Second, some of the basic assumptions underlying strategic studies (which is closely associated with realism) also suggest that behaviour cannot be judged on purely pragmatic grounds. The core Clausewitzian idea that war is a continuation of policy is, at one level, an ethical statement. The notion that military power is only valid if it serves the interests of the community can be regarded as a moral statement. In this way, one might argue that realism operates in a consequentionalist manner, by regarding war as a necessary evil to serve the greater needs of the community. Finally, in the service of self-interest many realist authors accept that ethical concerns do have an impact on the practice of strategy and therefore have to be taken into consideration. Take, for example, the following statement by Colin S. Gray, who argues that war 'should be waged militarily in such a manner as not to sabotage its political goals'.[12] This may look like realism paying lip-service to ethics, but if the end result is a more ethical approach to warfare, does it really matter? It is also worth noting that the more embedded ethics become in military affairs, the more they become part of military culture.

In the final analysis, realism can be said to share some of the features of 'naturalism' in the field of moral philosophy. This philosophical approach is based on the principle that values should be based on facts. Or, to put it another way, we ought to behave in such a manner as is consistent with the way the world is. Although realism may regard itself as empirically based, in that it merely describes the way the international system operates, it also has normative elements. Some realists, especially those in strategic studies, proffer advice based on their perspective on the workings of the system. So, for example, realist authors may reject the importance of ethics as a dimension of strategy on empirical grounds, because it contradicts the way in which the system functions. And yet, ironically, this is a normative statement.

Just war

Despite some statements to the contrary, it is clear that a relationship exists between ethics and realism. However, that relationship, especially in times of war, is a troubled one. Difficulties in the relationship emanate from a number of factors, including the balance between competing ethical perspectives (consequentionalism and deontology), the nature and subsequent demands of strategy (which is complex, rational, uncertain and competitive), and the fact that ethical concerns are likely to be overridden in times of emergency (which are most usually found in times of war). Despite these substantial obstacles to a coherent relationship, ethics and war have to coexist, if for no other reason than the fact that humans are ethical beings. One of the most notable attempts at reconciling ethics and the use of force is the just war tradition.

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The just war tradition is based on the premise that violent conflict is likely to occur. Within this tradition war is accepted as a social fact, abhorred but tolerated as a lesser evil. Indeed, within the just war framework, war can be considered in a more positive light, as a moral necessity in certain cases: an answer to injustice.[13] However, although necessary and legitimate, war must be regulated, both in terms of its outbreak and conduct. This approach to ethics and war has a long history.[14] It is difficult to precisely identify a start point for just war, but one can identify preliminary features of the tradition in ancient Greece. Prior to the rise of Macedonia, the Greek city states fought war between themselves in a quasi-ritualistic manner. To use Plato's language, their conflicts were defined as 'discord', rather than 'war', the latter being far more total and unregulated. The former was characterised by a range of restrictions, including no pursuit of a defeated enemy and prohibition against attacks on civilians and their property. It is actually from ancient Greece, and Aristotle in particular, that we get the term just war.

The just war tradition developed further in Rome, where the Roman statesman Marcus Tullius Cicero outlined many of the features we associate with it today. In particular, he was concerned that Roman military adventures should be perceived as a last resort to correct some injustice (right intention); that there was a formal declaration of war by a legitimate authority; that prisoners of war were treated fairly; and that in the conduct of war a distinction should be made between combatants and non-combatants.

These early notions of the legitimate use of force found resonance in a growing Christian dialogue on the subject. Led by such moral authorities as St Augustine, St Thomas Aquinas, Gratian, Vitoria, Suarez and Grotius (the last, although not a member of the clergy or a religious order, did write from a Christian standpoint). Christian theologians sought to reconcile Christ's message of forgiveness and pacifism with the virtues of charity and love, which could be interpreted as producing a duty to protect one's neighbour from harm. Dominating the Christian approach to just war was the notion of right intention. For writers such as Aquinas, right intention was crucial, not only in that it justified the recourse to war, but also because it should influence the conduct of military operations as well. The argument being that a war fought on the basis of Christian virtues would be conducted in a manner consistent with those same principles. Out of this line of reasoning came the important principle of proportionality.

The modern interpretation of just war, although largely couched in secular philosophical language, is directly built on this tradition. Just war is now most commonly divided into two distinct but related components: jus ad bellum (justification for going to war) and jus in bello (justice in how war is conducted). The former is subdivided into six further categories, all of which represent a criterion that must be met for the war to be judged as legitimate: just cause; right intention; last resort; legitimate authority; proportionality; reasonable prospect of success. Jus in bello is divided into discrimination and proportionality. These criteria will now be further explored. As this analysis progresses, it will become clear that, although just war provides a common language through which we can debate the legitimacy of wars, the application of the theory is problematic and specific to each case.[15]

Box 3.2 **Just war**

Jus ad bellum

Just cause
Right intention
Last resort
Legitimate authority
Proportionality
Reasonable prospect of success

Jus in bello

Proportionality
Discrimination

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Jus ad bellum

Just cause

Just cause is most commonly associated with self-defence. It is commonly recognised, and indeed is enshrined in the United Nations Charter, that every individual, group or state has an inherent right to defend itself in the face of an imminent or actual armed attack. This principle has been developed further to include the idea that one can act in the defence of others, and perhaps even in the defence of certain rights. In modern times this principle has been applied to UN and NATO operations in defence of Kuwait in 1991 and the Kosovo Albanians in 1999. The latter, although not authorised by the UN (the campaign was conducted by NATO), was important because it indicated that an ethnic community within a sovereign state could be protected by external powers. In essence, outside powers could act in self-defence on behalf of a group that was powerless to do so itself.

Self-defence and the defence of others (as an act of charity and love) seem fairly straightforward cases of just cause. However, the issue has been clouded in recent years with the notion of pre-emptive or preventive self-defence. Following the 9/11 terrorist attacks on New York and Washington, the Bush administration outlined a doctrine that sought to legitimise this broader interpretation of self-defence. Under Bush, the United States argued, with some legitimacy, that is was irresponsible for a state to wait for an attack to form before responding. Especially in an age of WMD, such an approach could leave a state vulnerable to devastating levels of destruction. On careful examination pre-emptive self-defence appears to be logical and legitimate. It seems justified for a state to pre-emptively respond to an imminent attack, and thereby potentially reduce the damage that may be suffered had the attack gone ahead unhindered.

The legitimacy of such actions rests on one's definition of 'imminent'. Few would argue with a state acting pre-emptively on the basis of enemy forces moving into attack

positions or reliable intelligence showing that terrorists were in the final stages of launching an attack. Problems arise with the notion of preventive self-defence. This notion tends to relate to actions taken against a threat in the earlier stages of its development. For example, preventive self-defence could be used as the grounds for attacks against a rogue state's nuclear programme, for fear that at some later stage nuclear weapons could be developed and targeted against others. The legitimacy of such an attack would be open to question, certainly if it is sold as an act of self-defence. With no direct evidence to indicate that any weapons would be used in anger, a basis for self-defence would be difficult to justify. In a world of intelligence reports of uncertain reliability, deciding when to act on a perceived threat will always be a difficult judgement call and something of a gamble. If a statesman gets it right, and pre-empts an obvious enemy attack, his actions will be regarded as legitimate and will likely attract international support. However, if he gets it wrong and acts prematurely he may simply be regarded as an aggressor. Of course, waiting too long for evidence of a threat to mature may ultimately leave a state as the victim of an unhindered attack.

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Right intention

Associated to the notion of just cause, resort to war must also be undertaken with right intention. Generally speaking, this refers to the idea that a war must seek to produce an obviously better and more just outcome than if it had never been fought. So, for example, a war fought for humanitarian reasons (perhaps to prevent or limit ethnic cleansing) would seem to pass the test of right intention. In contrast, a war fought to increase the power and territory of a state (even if said state perceived itself as a force for good) would struggle to fit comfortably into the category of right intention. Clearly, as this last example reveals, whether or not right intention has been satisfied is very much in the eye of the beholder. To return to our example: a state that perceives itself as a force for good may regard its aggrandisment as an act befitting the notion of right intention. However, other international actors are unlikely to agree with such a judgement. Perhaps just as importantly, such a war would likely breach international law (which will be discussed in more detail later).

Last resort

Resort to the use of force, although perceived as legitimate under certain circumstances, should not be undertaken lightly or in haste. Indeed, for a war to be universally declared just military action must be considered the last resort. Before war is initiated, even in a case of obvious just cause and right intention, all other reasonable peaceful methods must have been exhausted to resolve the issue in question. How this responsibility is fulfilled depends on the circumstances. In the case of an imminent attack or extreme humanitarian emergency, it would clearly be inappropriate to spend weeks to allow the wheels of diplomacy and/or sanctions to produce a fruitful outcome. In such circumstances, non-violent means would have to be explored rapidly and perhaps even bypassed entirely. However, under less than extreme circumstances diplomatic means must be leveraged to solve a dispute or correct an injustice. Normally, in the post-war

period, this would involve utilising the mechanisms of the UN. Economic sanctions are slightly more tricky from an ethical standpoint. Although they have often been regarded as a more ethical response than military action, this viewpoint is increasingly being questioned. The effects of sanctions, especially when targeted against totalitarian regimes, often fall most heavily on the poorest sections of society.

Legitimate authority

It is not only the decision to wage war that incurs scrutiny in the just war tradition; who makes that decision is also of import. The decision-making body must be regarded as a legitimate authority. As Whetham notes, the one exception to this rule is those acting in self-defence.[16] Since self-defence is regarded as an inalienable right, one does not require authority to enact that right. However, in most other circumstances legitimate authority must be recognised. This is another area of the just war debate open to differing interpretations. How does one define legitimate authority in a way that attracts a reasonable level of consensus? In the modern international system, legitimate authority almost exclusively lies with the recognised governments of nation states or international organisations acting on their behalf. The latter, and in particular the UN, have become increasingly central to this issue. Aside from self-defence and cases of urgent humanitarian intervention, resort to war is only considered legitimate if it is authorised by the UN Security Council. However, it must be remembered, despite the views of some commentators who regard the UN as a neutral arbiter, that the UN is a construct of the nation state system. It is true that the UN holds a degree of legitimacy and authority somewhat beyond the states from which it is made. Nonetheless, states in the Security Council, and especially the Permanent Five who hold the power of veto, ultimately decide whether or not the UN acts on issues of war. Therefore, in a practical sense, one could argue that legitimate authority still ultimately resides with the nation state.

Do non-state actors have any standing on the issue of legitimate authority? There are certainly cases, especially those involving state-based injustices, when it may be argued that a non-state actor enjoys some legitimacy in its use of force. There are many who would regard the ANC's military campaign against the South African government as an example of just cause and legitimate authority. Such examples suggest that non-state legitimate authority is possible in cases were the legitimacy of the standing government or political system is questioned. In contrast to the case of the ANC, few would regard the leadership of the IRA as legitimate authority in a just war sense. Since the Irish Republican movement had access to, and representation in, the democratic political system, a self-proclaimed republican leadership would not be regarded as having the legitimate authority to undertake violent military action in pursuit of its goals.

Proportionate response

Even if all the criteria so far have been met, the resort to war must be proportionate to the issue at stake. Some cases are fairly clear-cut in this respect. If massive human rights abuses are occurring, leading to much suffering and the deaths of hundreds or

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thousands (as in Kosovo), then military action would seem a proportionate, if regrettable response. One could also argue, although it is a more problematic case, that war would be a proportionate response to massive disruption to the global economy, perhaps through the seizure of oilfields (as in the 1991 Gulf War). It may be more difficult to justify the resort to war over the affections of a woman (Troy).

The 2003 invasion of Iraq offers an interesting example on the issue of proportionality. If one rejects the argument that the 2003 war can be legitimised as an act of preventive self-defence or a humanitarian intervention (to overthrow the regime of Saddam Hussein), then one is left with the notion that the war was fought in response to Iraq's failure to fulfil its obligations under UN resolutions relating to its WMD programme. When Britain and the United States failed to get a second UN resolution authorising military action against Iraq in 2003, reference was made to the 1991 resolutions, which authorised military action should Iraq fail to destroy and account for its WMD programme and stockpiles. However, in the absence of an imminent threat from Iraq's WMD (if, indeed, it had any), an invasion would seem a disproportionate response to Iraq's failure to completely account for its previous activities. Alternatively, one could argue that the reputation of the UN was at stake, and that this could be regarded as enough of a cause to justify resort to war. Clearly, the Iraq case indicates that the issue of proportionality is a very subjective area.

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Reasonable chance for success

Finally, for resort to military action to be regarded as just, there must be a reasonable chance for success. At first glance, this seems a rather odd criterion for just war, and seems more at home in a strategic assessment of the situation. However, its inclusion makes sense because to incur the terrible costs of war without any hope of success could be regarded as the acceptance of unnecessary suffering. When assessing a war against this final criterion of jus ad bellum the word 'success' has to be clearly understood. It should not necessarily be equated with outright victory in the sense of defeating the enemy or achieving one's ultimate policy objective. Rather, success may be defined as achieving a more favourable settlement from a conflict. Such an approach can be seen in Japan's continued resistance towards the end of the Second World War. Although defeat was looking increasingly inevitable, the Japanese continued to resist, hoping to inflict such costs on the United States that the latter would offer terms more favourable than unconditional surrender. As a final point, it is important to note that if the enemy is hell-bent on the destruction of one's nation or race, then self-defence may be regarded as legitimate even in the face of certain defeat.

From the discussion so far, it appears that under the doctrine of just war legitimate recourse to arms is not easy to achieve. War can only be legitimately initiated by a legitimate authority (increasingly understood to be the UN or an equivalent body), as a proportional response, in the service of a just cause, with the right intention, when other avenues of peaceful resolution have been exhausted, and where there is a reasonable prospect of success. And, as noted, the challenge of fulfilling these criteria is complicated by the fact that many of them are open to subjective interpretation. However, despite the challenges involved, war continues to be regarded as a legitimate tool of

policy. This is especially the case as an act of self-defence, which is regarded as an inalienable right, and as a response to significant levels of injustice, especially extreme humanitarian crises. However, the complexity of the subject is evident in the controversies surrounding the definition of self-defence as it relates to pre-emption and preventive forms of action.

Jus in bello

Discrimination

For a war to be regarded as just, fulfilling the criterion of jus ad bellum is not sufficient. How the war is conducted is just as important. Walzer warns against the temptation to ignore jus in bello if jus ad bellum has been satisfied.[17] As noted, the criteria for jus in bello are discrimination and proportionality. Discrimination is unambiguously based on the notion that there is a clear distinction between combatants and non-combatants, and that the latter do not represent legitimate targets of military force. In turn, non-combatants are not permitted to take up arms in a conflict. Discrimination refers not only to civilians, but also to combatants who have become hors de combat. This status applies most commonly to prisoners of war and the wounded. It is important to note that discrimination applies also to objects, including buildings and infrastructure. Attacks against civilian objects are prohibited under Rule 7 of the handbook on the customary law of war. This rule is designed to prevent civilians from suffering as a result of attacks against such things as food and water supplies.

Although discrimination may be regarded as an absolute principle in just war, its application is somewhat complicated by a number of issues.[18] In the first instance, distinguishing between a combatant and non-combatant may not always be so straightforward. This is especially problematic during insurgencies and counterterrorism campaigns, when an irregular enemy may deliberately hide among the general population. However, this difficulty is somewhat overcome by the 1977 Geneva Protocol I, which states that regular military forces should assume a person is a non-combatant unless proven otherwise.[19] The problem of defining 'non-combatant' is even more pronounced in relation to objects. Take, for example, the electricity grid of a nation. While it clearly underpins much of civilian life, it also may be an important component of military command and control and the enemy's war-making potential. Therefore, is power generation a legitimate target or not?

The principle of discrimination (both in terms of people and objects) is also clouded by military necessity and the aforementioned doctrine of double effect. Although military necessity can never be used as a justification for the deliberate targeting of civilians, it does, in combination with double effect, permit the foreseen but unintentional killing of civilians for military purposes. This point may seem to dilute much of the intended effects of the principle of discrimination. However, military necessity should not be regarded as a permissive notion. Rather, as Henry Shue indicates, under the principle of military necessity a military operation can only be undertaken if it is physically necessary and indispensable and/or unavoidable in order to achieve one's military objectives. Also, even under the principle of military necessity all actions must be lawful.[20] Hence, military necessity can never be regarded as an excuse for actions

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that are unnecessarily brutal or indiscriminate, even if they are carried out in the pursuit of legitimate military goals. Finally, the principle of discrimination is supported by, and works alongside, the principle of proportionality.

Proportionality

Both discrimination and proportionality are concerned with preventing unnecessary suffering in war. The principle of proportionality seeks to limit suffering by demanding that the human costs of military operations are reasonable in relation to the expected military gains. Thus, although unintended civilian casualties are permitted under the notion of double effect, they cannot be disproportionate to the goals sought. For example, destroying an airbase in a populated area with a nuclear warhead, although it would almost certainly achieve its military goal, is likely to be regarded as a grossly disproportionate use of force.

Henry Shue argues that a military operation must also have a clear and achievable objective that creates significant military advantage for any costs involved to be considered proportionate. He argues that it is insufficient to undertake an action with only some vague hope or idea that it will at some stage deliver some advantage.[21] While it is difficult to argue with Shue's general point, one can take issue with his understanding of the nature of war and the examples he uses. For example, he argues that the attritional battles of the First World War should not be regarded as legitimate on these grounds. Although, in retrospect, many of the battles of this conflict appear problematic on the grounds of military necessity and proportionality, the commanders at the time were genuinely seeking a breakthrough. And, even in their failures they were relearning the art of war in the face of modern technology. The results of this costly learning experience can be seen in the remarkable gains achieved by both sides in 1918. Also, it should be noted that some attritional battles were fought precisely because they seemed to offer the best prospect for a positive outcome. For example, at the Battle of Verdun, the Germans thought they could crush the resistance of the French by bleeding the French army dry. The fact that they were wrong does not diminish the fact that they initially perceived attrition to be a war-winning strategy. Finally, Shue is unnecessarily harsh on campaigns that rely on cumulative effects. The Germans were finally defeated, at least in part, by the cumulative attritional effects of big battles such as the Somme and Verdun. Thus, we can conclude that many of the battles of the First World War were necessary in order to achieve overall victory, and that they were proportional relative to the scale of the war and the character of warfare at that particular moment in history.

Proportionality also relates to the methods and weapons of war. Again, the principle behind this is the prevention of unnecessary suffering. Thus, certain weapons and methods of warfare are prohibited as they cause unnecessary suffering that is disproportionate to any military gains that could be made. Weapons that are designed to maim rather than kill are often prohibited on the basis that they inflict unnecessary suffering. Such a prohibition applies to laser-blinding weapons, for example. In terms of methods, atrocities such as rape are prohibited. Although such methods could be used to terrorise and coerce a population, they, too, are prohibited on the grounds of proportionality and causing unnecessary suffering.

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One set of weapons that seem completely at odds with the principles of jus in bello are nuclear weapons. However, the ethics of nuclear strategy are less clear than one might imagine. It is theoretically possible for nuclear weapons to pass both the discrimination and proportionality tests. A small nuclear device could be used against enemy forces (perhaps a naval vessel) in a remote and unpopulated area (sea or desert). In such circumstances, it is entirely possible that no civilians or civilian infrastructure would be harmed or damaged, respectively. Still, the residual radiation from a nuclear device, which can last for many years, could result in a breach of both proportionality and discrimination at some later date. However, outputs from a nuclear device can be altered to limit the amount of residual radiation (this was the basis for the infamous neutron bomb of the Cold War), and thus realign nuclear weapons with jus in bello.

Nonetheless, despite the fact that one can construct a scenario in which nuclear weapons can be used in a proportionate and discriminatory manner, this is hardly the norm in nuclear strategy. Historically, nuclear strategy has been based, in part, on the delivery of massive amounts of destruction against urban areas. In those cases in which civilian centres have not been targeted, so-called 'counterforce' missions that focus on the enemy's nuclear forces and command and control, the proximity of military targets to areas of human habitation almost guarantees substantial civilian losses. Also, weapons with low residual radiation are the exception rather than the norm. Thus, in most circumstances nuclear weapons appear to fail important aspects of just war theory. And yet, even in its traditional guise, nuclear strategy resides in somewhat of a grey area in the ethics of war debate.

Ambiguity over the ethics of nuclear strategy emanates from two main sources: nuclear deterrence and supreme emergency. As Chapter 11 of this book argues, nuclear strategy has been dominated by the concept of deterrence. At one level of understanding, nuclear deterrence functions not on the use of force, but on the threat of the use of force. This creates debates within the military ethics community. As Srinath Raghavan notes, because nuclear deterrence may prevent war, and thereby create a positive outcome, a consequentionalist would regard nuclear deterrence as morally valid. Although it works on the basis of threatening vast amounts of suffering and unhappiness, it is actually intended to produce happiness by promoting a stable security relationship devoid of war and its attendant suffering.[22] However, this carefully balanced position is clearly undone if deterrence fails and the threat is enacted. What then for the consequentionalist position?

Deontology presents a similarly complex position. On the one hand, one could argue that since nuclear deterrence has as its intended goal the prevention of war, nuclear strategy is morally valid due to having sound intentions. In this sense, we have a duty to prevent war, and if nuclear threats are the only means to achieve this, then they are perceived as morally legitimate. Such an argument is premised on the idea that we can distinguish between the threat of nuclear annihilation (deterrence) and fulfilling that threat. On the other hand, a deontologist is more likely to take the position that it is immoral to threaten that which it is immoral to do. This is especially the case because nuclear deterrence, by holding entire populations hostage, is using human beings as means to an end.[23]

From the perspective of the just war tradition, nuclear weapons appear morally

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unsound because, in most cases, they appear to fail the tests of both discrimination and proportionality. However, on the issue of nuclear deterrence Walzer proposes that supreme emergency (the threat of nuclear war) requires us to adjust our ethical position. In particular, as with the consequentionalist position outlined earlier, he argues that threatening evil may be morally defensible because it seeks to prevent that same evil from occurring.[24] While there is a recognizable logic in this position, it still suffers from the problem of what happens if deterrence fails, either by deliberate act, miscalculation or accident? Indeed, deterrence may fail precisely because the threats on which it is based provoke fear and instability in a security relationship. At this point, the just war argument breaks down in relation to nuclear weapons. However, with a more liberal interpretation of discrimination, proportionality and double effect, nuclear war itself may be defensible under the umbrella of supreme emergency.

If we accept the position that the threat of nuclear war creates a supreme emergency, then it seems reasonable to argue that the state of supreme emergency continues to exist after nuclear war has begun. That being the case, rather than simply submit themselves to global Armageddon, decision makers have a moral duty to limit the damage and suffering that will result from a nuclear conflict. This is most directly done by counterforce strikes against the enemy's nuclear forces and his command and control infrastructure (which includes the leadership itself). Since deterrence has failed, attacks against the civilian population (countervalue attacks) would be difficult to justify on moral grounds. Although it is possible that countervalue attacks could support intra-war deterrence, and thereby fit into the consequentionalist position, they would clearly fail any deontological test and the just war principle of discrimination. However, civilian losses as a consequence of counterforce missions could be justified under the principle of double effect. And, since there is a state of supreme emergency, one could argue that the anticipated heavy losses are proportionate to the objectives sought, namely the survival of the nation state and perhaps even the human race as a viable species. This scenario is undoubtedly horrific, but there is a certain logic to it from an ethics perspective, certainly from one that is based on the just war tradition and accepts the principles of supreme emergency and double effect. Of course, as with so many of the debates outlined already, this argument is based on one's subjective interpretation of proportionality. Are the deaths of 200 million people, for example, proportionate to the objective of saving an entire nation and perhaps the vast majority of the human population?

The laws of war

Although the ethics of war and laws of war are distinct, the modern legal system for regulating conflict is based on the just war tradition.[25] In this sense, the laws of war are divided into those that cover the resort to force (jus ad bellum) and those that regulate the conduct of hostilities (jus in bello). This chapter will now outline the main laws in both cases, before discussing the efficacy of the legal framework for conflict.

During the interwar period of the twentieth century there were two main attempts to prohibit recourse to war in international politics: the League of Nations and the 1928 Kellog-Briand pact. The absence or withdrawal of key states doomed these attempts to

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failure, as was evidenced in the outbreak of the Second World War. However, the shock of a second devastating global conflict inspired a third attempt at regulating war as a tool of policy. Thus, resort to war in international politics is now largely governed by Article 2(3)(4) and Chapter VII of the UN Charter. Article 2(3) stipulates that 'All members shall settle their international disputes by peaceful means'. This is supported by Article 2(4): 'All members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations.' Chapter VII of the UN Charter contains two exceptions to this general prohibition against the use of force: individual and collective self-defence, and actions authorised by the UN Security Council for the maintenance or restoration of international peace and security. These provisions are endowed with the character of jus cogens, which is defined as 'a peremptory norm of general international law … accepted and recognised by the international community of states as a whole as a norm from which no derogation is permitted.' At one level this prohibition looks fairly robust. However, some of the terminology is open to interpretation. How does one accurately define 'the threat of force'? Does such a threat need to be overt and direct? Similarly, how does one define peace and security?[26]

The various laws that apply to jus in bello are now commonly referred to as 'international humanitarian law' (IHL), although they can be subdivided into Geneva Law and Hague Law. The former is primarily concerned with protecting the victims of armed conflict, while the latter relates to the methods and means of warfare. The Geneva Law is based on the four Geneva Conventions of 1949 and additional protocols. The four conventions, signed and ratified by 194 states, deal with the victims (sick and wounded) of (I) land warfare; (II) sea warfare; (III) prisoners of war; and (IV) civilians. In 1977 the Additional Protocol II, which deals specifically with civil wars, was signed. Hague Law is based on the Hague Conventions of 1899 and 1907 and the 1977 Additional Protocol I to the Geneva Conventions. Hague Law seeks to regulate the conduct of warfare in general, and includes specific areas such as maritime and aerial bombardment, chemical munitions, and bullet design.

Although much effort has been expended on the development of the laws of war, producing an extensive and complex legal framework for hostilities, the efficacy of international law (including the laws of war) often comes under attack. It is argued that states only abide by the law when it is in their interests to do so, disregarding laws as and when they need. This perception is no better illustrated than by the famous comment by the German Chancellor Theobald von Bethmann-Hollweg on the eve of the First World War: 'We are now in a state of necessity, and necessity knows no law.' This statement can be interpreted in a number of ways. Justin Morris argues that it is significant for the status of international law that Germany invaded neutral countries 'not in disregard for the law, but rather in conscious breach of it'.[27] Thus, even though in breach of the law, there is some recognition of its status in the workings of the international system. Although there is clear merit in Morris' interpretation, his position is perhaps too generous towards the status of international law. A different reading of the chancellor's statement might emphasise the point that in certain circumstances (supreme emergency) the law is not consciously breached, it is considered defunct. Or, to put it another way: '[I]n time of war the law is silent.'[28] This is particularly important

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in relation to the laws of war, as it is precisely in moments of conflict that the law is arguably most needed and tested.

Nonetheless, although at times the law is disregarded (to use Morris' term), this is the exception rather than the norm. For the vast majority of the time states abide by the laws of war. Even in those cases when the laws have been ignored in relation to jus ad bellum, those pertaining to jus in bello are largely applied. Why is it that states normally abide by international law, even in times of war? There are a number of reasons why states respect and apply the law. These reasons can be grouped under the headings of self-interest (which can be subdivided into stability, legitimacy and reciprocity) and shared norms. For the most part, self-interested states benefit from stability and predictability within the international system. The law clearly helps to facilitate these goals. It is also generally beneficial for states to be well regarded by their peers. In particular, it is important for a state to be trusted and to be seen to play by the rules. By fulfilling their obligations under international law, a state is likely to be perceived as a legitimate actor within the system. Finally, on the issue of self-interest, for the most part international law protects the interests of the state system. This covers many aspects of state relations, including trade and communications, to name just two. Thus, a state may abide by the law on the understanding that others will do the same: 'Do unto others as you would have them do unto you.'

Thus far this discussion represents a realist take on states' behaviour in relation to international law. However, there may be other, less pragmatic reasons underlying attitudes towards the law. As noted earlier in relation to the work of Morgenthau, it may be that states, which at some level are a reflection of the moral beings they represent, hold certain norms to be valid. This may apply to individual laws, such as non-combatant immunity, or it may relate to the validity of the rule of law in general. In this sense, states may abide by international law simply because they perceive it to have intrinsic value beyond the interest of the state.

Thus, in relation to the fortunes of international law, it seems that most of the time states are happy to abide by a legal code. And, as noted earlier, this is for a number of different reasons, which taken together present a solid basis for the growth and success of legal regulation of state behaviour. However, it is also evident that state actors will breach or ignore the law if required, especially when facing a supreme emergency. As noted earlier, it has been suggested that in the aftermath of the 9/11 attacks we have entered a period of international politics when the laws relating to jus ad bellum are being seriously challenged and perhaps even redefined. In response to the terrorist attacks on its homeland, the United States released a new security doctrine that seems to broaden the definition of self-defence, to include pre-emptive and preventive action to stymie an attack before it has been launched or become fully formed. This expanded interpretation of self-defence partly formed the basis for the 2003 invasion of Iraq.

For those who put much value on the rule of law as it pertains to jus ad bellum, the prospect of states acting in a minority to redefine aspects of international law may seem like a retrograde step. Indeed, one might argue that such a reinterpretation of international law is nothing more than a cover for an act of realist power politics. However, it has also been argued, particularly by the Blair government, that the invasion of Iraq was undertaken to maintain the integrity of international law.[29] In this sense, the invasion

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was launched to uphold the authority of the United Nations, and was actually justified in law by Iraq's failure to fulfil its legal obligations under Security Resolutions dating back to 1991. Again, this might be regarded as a cover for naked power politics, but there is some basis for such claims to legitimacy. In the final analysis, the invasion of Iraq, and its consequences for international law, can be read in many different ways. It can be seen as upholding international law (the 1991 UN Resolutions); as a redefinition of the inherent right to self-defence, much needed in the changing security environment; or as naked power politics reflecting no respect for the laws of war. However one sees it, the invasion of Iraq still represents an exception rather than the norm. The laws pertaining to jus ad bellum may be open to some debate in the aftermath of 9/11, but they are still very much in effect.

At the same time that jus ad bellum is being challenged, the principles of jus in bello appear to be more eagerly applied and monitored. The legal profession now has much greater influence in the conduct of military operations. This is matched by a substantial increase in ethics training within military services. This increase in ethical and legal awareness has been partially brought about, and monitored, by global (24/7) media and the growth of non-governmental organisations dedicated to the promotion of human rights and the rule of law. These so-called 'norm entrepreneurs', such as Human Rights Watch, have become increasingly well organised and influential in compiling reports and naming and shaming states that breach established principles on the use of force.[30] This increased awareness has brought to light such abuses as those carried out at Abu Ghraib prison in Iraq. There have also been developments in the enforcement of international law. Most importantly, the International Criminal Court was established in 2002. This permanent tribunal can hear cases relating to genocide, crimes against humanity and war crimes. At the time of writing, 114 states are members of the court. However, important actors in the international system, such as the United States, Russia and China, have not signed the treaty, have withdrawn from it, or have yet to ratify it.

While these developments in the application of jus in bello are to be welcomed by those interested in the regulation of armed conflict, the story is not wholly positive. Incidents, such as the aforementioned Abu Ghraib, continue to occur within the military services of developed states. In addition, the conflicts in Kosovo, Rwanda and Sudan reveal that brutality and even genocide still plague humanity. However, negative developments are not just related to cases in which the laws of war seem impotent. It is also possible to identify areas where a legal approach may have overstepped the mark and become overly intrusive and complex. In the United Kingdom, coroners' courts now routinely investigate the death of British servicemen in combat zones, and, in doing so, make judgements on the competence of military operations. While it is useful from the perspective of best practice to examine past military operations, it is less easy to see the benefit of a coroner ruling that a combat death was unlawful. While a coroner may identify failings in command or military administration that contributed to the death of a serviceman, again it has to be questioned whether this is the right forum for such analysis and discussion. In a recent hearing, one coroner concluded: 'It is my belief that it is imperative that our forces, whether they be in Iraq or Afghanistan, are given the best available equipment.'[31] While this is a sentiment that most would agree with, it takes little account of the complexities of defence planning and military

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operations in the face of the enemy. This is not to deny that often military failures and the deaths of servicemen could have been avoided with more careful preparation. Rather, it is merely to note that those making a judgement on such issues should be cognisant with the nature of war and the challenges of defence planning.

The laws of war are also becoming increasingly complicated. One commentator who is generally supportive of the legal approach has admitted that 'Mastering the body of IHL and related areas is a challenge for any military or civilian lawyer'.[32] If we remind ourselves of the complexity and uncertainty intrinsic to war, then we have to conclude that introducing further complexity through the medium of the law is problematic. It certainly seems to go against the advice of Clausewitz to keep things simple. If applied and interpreted with too much vigour, there is a real danger that the laws of war begin to conflict with the demands of strategy. Indeed, in a remarkable statement, Christopher P. M. Waters argues that 'Strategy should not trump law when the two depart'.[33] Is Waters really arguing in favour of accepting defeat to uphold the laws of war? He may not be thinking in terms of victory or defeat, but if the practitioner denies himself certain strategies, defeat may be the outcome. At best, the costs of a campaign may increase. Although Morris and Brodie are largely correct when they note that the laws of war are not especially prohibitive from the standpoint of military effectiveness, there is a sense that legality and ethical concerns are beginning to take precedence over strategic efficacy.[34]

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Strategic necessity

In such an emerging reality, the practitioner of strategy is left with a substantial dilemma. How does he achieve his policy objectives (victory) against an intelligent foe in a complex environment, while at the same time having to meet ever more complex and intrusive legal and ethical demands? The answer to this challenge may be strategic necessity, which puts policy considerations first, but by doing so also takes into account ethical and legal concerns. However, before this chapter details exactly what this entails, it is important to outline the significance of victory and the means to achieve it.

As Waters' statement indicates, there are those who regard the laws of war and ethical principles as inviolable, but do not regard strategy (the process of achieving victory) as so sacred. It seems that for such commentators certain methods, those that breach valued norms and laws, should be rejected, even if they represent an important means to victory. In response, it is important to remind ourselves just how important victory actually is. At best, failing to achieve one's objectives means that the lives sacrificed in a campaign are lost for little, if any gain. Defeat, however, can be far more serious. The Jews of Europe, aside from those already trapped inside Nazi Germany, were slaughtered because their respective states were defeated. The citizens of Carthage faced a similar fate at the hands of the Roman Republic. In this sense, Brian Bond is convincing when he argues that '[T]errible and destructive as war is, victory is usually sharply differentiated from defeat'.[35] Should victory be sacrificed in the name of legal and ethical principles? This is a legitimate question to ask on both strategic and ethical grounds. In relation to the latter, it is an example of the clash of duties identified earlier in the deontological position. If there is a moral duty to defeat evil or to defend the interests

of the community, should we deny ourselves certain methods to achieve those goals? This leads us to an important issue addressed by Walzer, who argues that each war must be judged twice, according to jus ad bellum and jus in bello. It also raises the prospect that there may be a hierarchy between the two components of the just war tradition. If a war passes the jus ad bellum test should it be given an easier ride in relation to jus in bello?[36]

This question is complicated by the methods available to a strategist. Ideally, a strategist will have at his disposal a method that achieves the objectives and fulfils the demands of law and ethics. Indeed, the laws of war demand that a commander choose the method that achieves his military goals in a manner that causes least harm. However, that may not always be possible or easy to calculate. It has already been noted that nuclear strategy may require an approach that sits uncomfortably with the just war tradition. Coercion presents similar problems; it is regarded as an efficient and effective form of strategy: 'The power to hurt can be counted among the most impressive attributes of military force.'[37] For its strategic effect, it relies on the threat of, or indeed the actual infliction of, pain on others. Coercion seeks to change the enemy's behaviour via the threat of punishment. Often this punishment is directed against the civilian population, who in turn may put pressure on their political leadership to accede to the enemy's demands. Although coercion can involve the direct targeting of civilians, in the modern era coercion will mostly occur by attacking infrastructure that supports the functioning of society. Is this an appropriate method for waging war?

How one answers this question will reflect one's ethical approach. A deontologist, assuming that he took the Kantian position that people should be regarded as ends rather than means, would denounce coercion since it uses the pain and suffering of others to reach desired objectives. Whereas a consequentionalist may regard the suffering of coercion as acceptable if it led to the greater good. Since coercion is regarded as an efficient and effective use of force, it is entirely possible that consequentionist demands could be met by ensuring a rapid end to hostilities with minimal loss of life and pain. In contrast, the just war tradition would most likely reject coercion if it relied on the deliberate infliction of pain on a population (which it often does), and thereby failed the discrimination test. The most logical position, although not necessarily the most ethical one, is strategic necessity, which will now be defined.

In contrast to military necessity, which is a legal concept that recognises military requirements, but does so within the confines of IHL, strategic necessity takes a more pragmatic approach to the subject. The difference between these two concepts may be subtle, but it is significant. Strategic necessity takes account of ethical and legal considerations, but is not shackled by them. Most importantly for the purposes of this chapter, strategic necessity actively incorporates the ethical dimension into the process of strategy and decision making, although it does this in an instrumentalist manner. It is true that under the terms of military necessity, a commander must take account of ethics and the laws of war. This is achieved by the commander's legal responsibility to ensure that any actions are necessary and do not breach IHL. In particular, any operations must be in tune with the principles of proportionality and discrimination. However, under military necessity IHL may be regarded as essentially an external framework for action rather than an integral part of the decision-making process. Within strategic necessity,

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ethical and legal considerations potentially carry as much weight as those relating to military needs.

Exactly how much influence each set of considerations will have in any particular scenario should be determined by the process of strategy. Strategy is driven by policy. Any actions must be judged on how they affect achievement of the policy objective. Thus, within strategic necessity, it is entirely possible that a military operation that is regarded as necessary and fulfils the requirements of proportionality, discrimination and double effect (and abides by IHL) could still be cancelled if attainment of the policy objective is hindered by anticipated moral outrage. In this sense, within strategic necessity decision making has gone beyond mere legal and ethical checks and incorporates these dimensions into an overall vision of strategy. However, while it is possible that this approach will result in even greater regulation and limits on the use of force, this is not necessarily the case. Strategic necessity would also permit actions that breach the war convention if the policy objective demanded it. Although in most cases it will be in the interests of the state to abide by the law, cases of supreme emergency may call for a more liberal interpretation of aspects of war convention.

With the policy objective as the guiding principle, ethical and legal issues can be dealt with in a more pragmatic fashion, since they have now become part of the process of strategic decision making. This is not to suggest that strategic necessity invariably simplifies the process of strategy in relation to ethical issues. There are still likely to be some difficult judgements involved in this process. For example, it may be difficult to gauge the likely moral response to certain military actions. What strategic necessity seeks to avoid are complex, intrusive, and sometimes irresolvable legal and ethical debates.

For the most part, abiding by the war convention equals good strategy. However, strategic necessity, which gives the user more flexibility in how he applies and interprets the convention, is a sensible response to Waters' position that the law should trump strategy. In fact, the opposite should be true. War is not the continuation of legal intercourse. War only has meaning and validity if it is used in the service of policy. The process by which this is achieved is strategy. That being the case, how can a war be valid if strategy is made impotent by strict interpretations and adherence to the war convention?

Strategic necessity is not a radical departure from existing positions. Rather, it merely seeks to rebalance the debate back towards the demands of strategy. It represents a pragmatic approach to war making. However, it is also cognisant of modern attitudes on ethics. And, although fundamentally it deals with ethical issues in an instrumentalist manner, it still gives them great respect. Indeed, strategic necessity ascribes value to the war convention because it reflects prevailing ethical norms, which must be respected in the name of good strategy.

There may be no watertight method to fulfil the demands of strategy while at the same time meeting the increasingly stringent demands of ethics and the laws of war. Attempting to limit unnecessary suffering in warfare is a positive step in the development of human rights. In this sense, the principles of jus in bello have undoubted value. However, seeking to achieve victory is also a positive goal. Comments such as those of Waters just noted raise an inevitable question: which should take precedence, ethics or

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victory? Strategic necessity suggests that the answer is victory (achievement of the policy objective), although ethical restraints should be respected as far as is practicable. While suffering in warfare should be moderated as far as possible, war should still be allowed to serve its ultimate purpose: achieving the policy objective in the service of the interests of the community. If methods can be found that fulfil the criteria of both strategy and the war convention then they should be encouraged. However, the strategist's already difficult job should not be complicated further by forcing him to jump through complex legal and ethical hoops. Indeed, it has already been recognised that enemies of the west have identified our efforts to apply strict ethical and legal standards as a weakness and are exploiting it. This so-called 'lawfare', which uses the law to degrade our strategic options, has to be countered at some level.[38] And, although at times the best method of neutralising an enemy's strength is to abide by the laws of war and claim the moral high ground, at times it may serve us to be more flexible in how we apply ethical norms and values. Clausewitz is certainly clear on the danger of ceding the enemy an advantage in relation to how law and ethics are applied in war: 'If one side uses force without compunction, undeterred by the bloodshed it involves, while the other refrains, the first will gain the upper hand.'[39]

Conclusion

War cannot be understood holistically without reference to the ethical dimension. Ethics are intrinsic to human activities. Thus, strategy must take account of this dimension. And yet, making sense of ethics in the rational, competitive and complex world of strategy is challenging. This is largely because ethics is anything but straightforward. How one judges the moral worth of an action will be significantly determined by whether one is operating from a consequentionalist or deontological position. Moral relativism adds further complexity to the endeavour. However, while there is undoubtedly much complexity and subjectivity inherent in ethical discourse, in the field of military ethics a consensus of sorts can be identified. Built on this consensus, the just war tradition seeks to mitigate the tension between ethics and the demands of strategy. Importantly, just war accepts the need for military action under certain conditions. In the contemporary environment, the right to resort to war (jus ad bellum) tends to be limited to self-defence (including the defence of others), the associated notion of responsibility to protect (humanitarian intervention), and in the cause of international peace and security. The great challenge in the post-9/11 era is to adequately define some of these terms. Self-defence in particular has been subject to redefinition. This relates primarily to the concepts of pre-emptive and preventive forms of self-defence.

When it comes to the conduct of war, the principles of discrimination and proportionality (jus in bello) lie at the heart of ethical discourse. The distinction between combatant and non-combatant is fairly well established, although it is not clear in every situation. In contrast, proportionality is open to a great degree of interpretation. This is another area where significant disagreements can occur. Having to spend valuable time and energy sorting through the differing possible interpretations of proportionality is an unwelcome addition to the complex process of strategy.

Increasingly, the war convention has developed a substantial legal dimension. As in

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the field of ethics, the laws of war are organised around jus ad bellum and jus in bello. Although there are clear cases of the law being breached and ignored, sometimes on a genocidal scale, for the most part the laws of war are respected and serve their purpose of regulating armed conflict to reduce unnecessary suffering. While it is generally recognised that the war convention does not significantly prohibit strategic efficacy – indeed, it can be an important component of success – a more zealous application of the law may be developing. There is a danger that obedience to the war convention may begin to take precedence over the quest for victory. The latter (which equates to achieving the policy objective) has to remain the primary consideration. Otherwise, war makes no sense. In addition, increased legal interference in the process of strategy could begin to hinder the freedom of the strategist and add an extra layer of complexity into an already challenging activity.

One way to overcome possible tensions between the war convention and the demands of strategy is the approach described as strategic necessity. By placing achievement of the policy objective as the main focus, strategic necessity ensures that all dimensions of strategy are given due respect. In the modern environment, ethical concerns demand significant attention. Thus, in most circumstances the laws of war will be respected and applied. However, strategic necessity is tolerant of the idea that the war convention can be interpreted in a more liberal fashion when circumstances (achievement of the policy objective) require. This position is not wholly different from Walzer's notion of supreme emergency. However, it differs on the grounds that strategic necessity treats the war convention in a more pragmatic, instrumentalist manner. Also, Walzer's definition of supreme emergency (the point at which the war convention can be legitimately ignored) is more restrictive.[40]

In the final analysis, there are no easy answers to the dilemmas faced by strategists when dealing with ethics in strategy. As with much in strategic studies, Clausewitz provides an outstanding insight into the complexity of the challenge faced. The following quotation from the Prussian is a comprehensive way of saying that on the issue of military ethics we must use our best judgement while struggling through an ethical and practical quagmire:

> We can thus only say that the aims a belligerent adopts, and the resources he employs, must be governed by the particular characteristics of his own position; but they will also conform to the spirit of the age and its general character. Finally, they must always be governed by the general conclusions to be drawn from the nature of war itself.[41]

Key points

1. There are different perspectives on ethics, but an overlapping consensus appears to exist.
2. Realism appears to reject ethics, but actually engages with the subject.
3. Just war seeks to reconcile the demands of ethics with the need for war.

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4. The laws of war, although reasonably balanced, can be used in such a manner as to interfere with the quest for victory.
5. Victory is a crucially important and positive goal.
6. Strategic necessity incorporates ethical and legal demands, but gives primacy to the policy objective.

Questions

1. Is ethics a suitable subject for strategy?
2. Do the laws of war inhibit strategic performance?
3. Can discrimination and proportionality be accurately judged?
4. Is it right to ignore ethics and the laws of war in the quest for victory?

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4 Technology and revolutions in military affairs

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Reader's guide: Development of the RMA hypothesis; information age RMA as a case study; the role of technology in strategy; the RMA hypothesis as an aid to theory and practice.

Introduction

From the 1991 Gulf War, until the terrorist attacks of 11 September 2001 shifted attention to irregular forms of warfare, the defence profession was dominated by the revolution in military affairs (RMA) hypothesis. Even with an increased emphasis on counterterrorism and counterinsurgency, the RMA has not disappeared. Rather, it has matured into the concept of military transformation.[1] At the centre of the RMA hypothesis is the idea that periodically opportunities arise to transform the conduct of warfare. If pursued correctly, these changes may confer significant advantage to those who exploit them, and may even revolutionise the act of war. Perhaps not surprisingly, this hypothesis has not been universally accepted. Among a range of challenges to the hypothesis, problems with methodology have been identified, and the general applicability of military transformation has been questioned. This chapter will begin by outlining the origins and development of the RMA hypothesis. The chapter will pay particular attention to the ongoing information age RMA. Various challenges to the latter will then be discussed. The chapter will then discuss the role of technology in strategy, identifying it as an important but not decisive dimension. Finally, an assessment reveals whether the RMA hypothesis has any real utility in the theory and practice of strategy. Throughout this chapter, historical case studies will be used to illustrate the various sides of the debate.

RMA: origins, development and core concepts

The modern origins of the RMA debate can be traced back to Soviet writings in the 1980s and historical analysis of European military innovation in the sixteenth century. In the early 1980s Soviet military writers, published under the name of Marshal Orgarkov, began to express concern at the growing sophistication of NATO conventional forces. In particular, they were worried about the coming together of a number of developing technologies: precision munitions, reconnaissance assets, and command, control and communication technologies. The Soviets feared that these developments,

brought together in a new system, would provide a leap in tactical and operational performance for NATO. In turn, this would spell the end of Soviet conventional superiority.[2] In an unrelated development, historical research appeared to validate these concerns. Geoffrey Parker, in his seminal work *The Military Revolution: Military Innovation and the Rise of the West 1500–1800*, argued that western colonial dominance could be attributed to the exploitation of advanced military technologies.[3]

These nascent ideas seemed to become reality during the Gulf War of 1991. Before hostilities began Iraq possessed the fourth largest army in the world, and it was no paper tiger. Elements of the army were battle hardened following the 1980–88 war with Iran. Although few commentators expected anything but a victory for the US-led Coalition, it was generally assumed that Coalition casualties would be in the tens of thousands. In the event, the Iraqi army was decimated, and the war culminated in a remarkably short 100-hour ground campaign. Most strikingly of all, the Coalition suffered fewer than 400 fatalities. In a bid to explain this remarkable victory, much attention focused on the technological disparity between the belligerents. This techno-centric view of the war was fuelled by television images from the conflict and a number of influential books and articles. The former included clips showing precision-guided missiles entering buildings through windows and Tomahawk Cruise missiles navigating low over central Baghdad. Of the latter, one of the most influential was Alvin and Heidi Toffler's *War and Anti-War: Survival at the Dawn of the 21st Century*. The Tofflers argue that the scale of the Coalition victory can be explained by the fact that the belligerents were operating within different waves of civilisation. For the Tofflers, human history can be divided into three waves of development: agricultural, industrial and information. Each of these waves has attendant methods for waging war, and generally speaking the more advanced form of warfare (in wave terms) will prevail. Thus, in 1991, the Iraqi approach to warfare, which was grounded in the industrial wave, was understandably swept aside by the Coalition's use of third-wave warfare. This third wave of civilisation is more commonly referred to as the information age.[4]

Armed with the idea of an information age RMA, theorists looked back through history in an attempt to identify other instances of revolutionary change in the conduct of warfare. In an early influential article titled 'Cavalry to Computer', Andrew Krepenivich identified 10 RMAs, three of which were the infantry, fortification and naval RMAs. However, it was less his list of earlier candidate RMAs that made the article stand out. Rather, it was his identification of four key elements that a candidate RMA must posses to qualify as the genuine article. These were technological change, organisational adaptation, operational innovation, and an identifiable leap in military efficacy. As the first of the four elements indicates, in most instances technological advances act as the prime catalyst for revolutionary change. However, Krepenivich did recognise that political and social change could sometimes achieve the same results. The most obvious example of the latter, and one that appeared in Krepenivich's list, is the Napoleonic RMA. Finally, Krepenivich's work contained a warning for contemporary defence professionals: those who exploited an RMA first gained considerable advantage when it came to conflict.[5] Therefore, failure to invest in the information age RMA could lead to disastrous results.

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Box 4.1 **Krepenivich's four characteristics of an RMA**

Technological change
Organisational adaptation
Operational innovation
Leap in military effectiveness

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A well-worn example of the need to get onboard the RMA train early (and, of course, correctly) is the German development of blitzkrieg during the interwar period. In support of the RMA hypothesis, Germany's successes can be partly explained by differences in approach to the new means of warfare. In contrast to the German approach, which used armoured forces as a concentrated spearhead for their offences, the Allies tended to regard their tanks within a traditional mindset, and used them as dispersed mobile artillery.

Blitzkrieg certainly ticks all Krepenivich's boxes. New technology came in the form of armoured forces, mechanised infantry, close air support aircraft and wireless radio. These were brought together in a new organisational form: the Panzer division. The doctrine of blitzkrieg, although not entirely new, melded the new technologies together and gave them operational function.[6] In order to classify as an RMA, of course, these innovations would have to produce an increase in military effectiveness. This certainly seemed to have been achieved in the early years of the Second World War. The conquest of France in six weeks stood in sharp contrast to the four years of indecisive slaughter of the First World War. Equally impressive were the early stages of the campaign in the Soviet Union, when German forces captured and killed millions of Soviet troops and reached the outskirts of Moscow by late 1941.

The German development of blitzkrieg undoubtedly appears to fulfil Krepenivich's RMA criteria. And yet, the observant reader will point out that the war did not end terribly well for Germany. In fact, the early triumphs were matched in scale by the tragedy of the final moments of the war. What does this tell us about RMA? Is it the case that interwar developments did not amount to a genuine revolution? The latter position is difficult to justify. As noted, new or maturing technology was evident, and was used to great effect through the combination of new forms of operational art and innovative organisational structure. Therefore, it may be the case that there are fundamental problems with the RMA hypothesis per se. More specifically, it may be that the concept of revolutionary (or certainly rapid evolutionary) change has validity, but much like strategic air power, it has been oversold as a decisive factor in war. This chapter will now explore the problems associated with the RMA hypothesis.

Criticisms of the RMA

Box 4.2 **Criticisms of the RMA hypothesis**

Construct of the military to justify defence spending
Reductionist academic construct
Overemphasis on discontinuity
Overplays the technological dimension

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Since its early inception, the conceptual basis for the RMA has been questioned. Some questioned whether it was merely a construct of the United States' military establishment, designed to justify increased investment at a time of potential retrenchment following the end of the Cold War.[7] In a less Machiavellian way, the RMA could just be an academic construct with no basis in reality. Academics have a tendency to codify the world. This is understandable, since codification is a legitimate means to intellectually order complex phenomena. Nonetheless, codification can go too far and identify phenomena that do not exist. Even if there is some legitimate empirical basis for identifying the existence of said phenomena, academic codification may over-simplify or exaggerate the boundaries between phenomena. The Tofflers' division of human history into three waves of civilisations appears to be a good candidate for over-simplification, as too does Samuel Huntington's clash of civilisation theory.[8] This is not to suggest that these theories have no utility or validity. Identifying broad trends, or grouping phenomena together under umbrella concepts, are potentially useful means for identifying similarities among seemingly distinct events and/or phenomena.

A third criticism of the RMA hypothesis is concerned with semantics. The term 'revolution' suggests a radical break with the past, which, in the case of some of Krepenevich's historical examples, may seem unfounded. In this way, the RMA may be guilty of distorting the reality of evolutionary developments, instead emphasising moments of discontinuity in order to support the concept of revolutionary change. In the field of economic and social history, the term 'industrial revolution' has fallen increasingly into disuse. Rather, historians now recognise that the shift from an agriculture-based economy to an industrial one occurred over a long period of time. Indeed, agriculture continued to play a substantial socioeconomic role in Britain well into the twentieth century.

In light of these challenges to the RMA hypothesis, how do the various candidate RMAs fare under scrutiny? Some, such as the infantry and artillery revolutions identified by Krepinevich, appear to be more evolutionary in nature. Indeed, Krepinevich acknowledges that elements of the artillery revolution took as many as 160 years to mature.[9] Some more recent RMAs also appear less radical on closer inspection. The interwar RMA (described earlier) looks less like a revolutionary change in the conduct of war when one considers the similarities between the First and Second World Wars. Despite being advertised as a war of manouevre, the Second World War often resembled its predecessor, in which dismounted infantry attacked fortified positions across

open ground.[10] The introduction of mechanised warfare did not render impotent that which went before. Indeed, during the early years of success the German army was powered as much by equine power as the internal combustion engine.

The fate of the interwar RMA, and, in particular, Germany's development of blitzkrieg, provides a fascinating example of the limitations of the RMA hypothesis. As previously noted, Germany's outstanding success in the early years of the war could not be translated into final victory. A number of factors help to explain why this was so. Germany faced resilient enemies with substantial resources at their disposal. For example, although victory over the Soviet Union may have been close on occasions (especially in late 1941 and 1942), no matter how many battlefield successes Germany had, the Soviets were always able to put another army into the field. To make matters worse, some of those supplying the Soviets (particularly the United States) with resources were beyond Germany's reach. Even though Germany was able to reach Britain with its bomber force, its main instrument of decision, the army, was blocked by the Channel and the Royal Navy. Without a rapid end to the war, Germany's enemies were increasingly able to mobilise their global resources. In addition, as the war progressed the Allies developed their own versions of Germany's RMA. War is a great teacher, especially for those who have been defeated but are still in the game. In this way, a monopoly on innovation may be relatively short lived. There are many reasons why Germany lost the war in Europe.[11] Most importantly, it failed at the higher levels of strategy and in the most important dimensions of strategy. These issues will be discussed in greater detail towards the end of this chapter, in the section on technology and the dimensions of strategy.

A final criticism of the RMA hypothesis, and in particular its undue focus on technology, relates to the concept of control in strategy. As previously noted, control can only be truly exercised by the man on the scene with a gun. Although advanced technology may help facilitate that man to perform his role, he still needs to be present in order to execute it effectively. For example, although modern air power played the dominant role in coercing Serbian forces to leave Kosovo, Albanian refugees would not return to their homes in the absence of NATO ground forces. Strategy is fundamentally about human interaction. Technology, even when used to great effect, plays only a supporting role in that interaction. In this sense, Fuller's comment that the technological drive in war has the aim of removing man from the frontline, although it may be accurate, is worrying in relation to achieving policy objectives.[12]

Genuine RMAs?

The RMA hypothesis may be flawed, and it may primarily speak to only one aspect of strategy: technological innovation. However, it is difficult to deny that certain technological advancements have appeared and/or developed rapidly, and gone on to have a substantial influence on the conduct of warfare. Two candidate RMAs of the twentieth century are especially prominent in this respect: air power and nuclear weapons. Within approximately 15 years of the first heavier than air flight, during the First World War aircraft were being used for reconnaissance, ground attack, strategic bombing and carrier-borne operations. By the Second World War, according to such notable practitioners as

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Field Marshals Montgomery and Rommel, air power had become the arbiter of success on the battlefield.[13] In its airborne role, it also facilitated the capture of the Belgian fortress at Eban Emel and the island of Crete. At sea, the Battle of Midway was won and lost by actions in the third dimension. Finally, air power had arguably changed the geostrategic environment. Britain, which had traditionally relied on the Channel to provide protection from her continental enemies, was now open to direct attack from the air. And, as the 1991 Gulf War and Kosovo conflict reveal, air power has potentially become the leading edge in modern warfare. Although it is correct to note that all the wars mentioned in this brief survey of air power had to be concluded by ground forces, they were all shaped dramatically by air power.[14]

The invention of nuclear weapons has had no less a dramatic impact on strategy than air power. Although nuclear weapons have not been fired in anger since August 1945, they dominated strategy during the Cold War. If nothing else, nuclear weapons promoted the age-old concept of deterrence to a new level of development and prominence. In this sense, their presence in large numbers also appears to have curtailed the direct utility of other military instruments in certain contexts. The conflicts in Korea and Vietnam, and tensions over Berlin and Cuba, could all have escalated were it not for the threat of nuclear mutually assured destruction. There were undoubtedly other factors involved in preventing the Cold War from going hot. Nonetheless, the threat of nuclear annihilation was undoubtedly an important factor.[15]

Nuclear weapons still appear to play this role in the post-Cold War environment. The head of Iraqi Intelligence during the 1991 Gulf War identified the nuclear forces of the United States as the reason Iraq did not employ its chemical arsenal during the conflict. Similarly, there is evidence to suggest that the threat of nuclear release eventually helped to de-escalate the conflict between Pakistan and India over the Kargil region in Kashmir.[16] Nuclear weapons, due to their expense and inaccessibility, have not permeated warfare to the same degree as air power. Nonetheless, in the hands of the superpowers they did reach into almost all areas of military activity. For battlefield use they were deployed as mortars, artillery shells, short-range missiles, as well as air-delivered bombs and missiles. Nuclear weapons were also deployed at sea as anti-ship missiles and anti-submarine depth charges. Finally, small mobile weapons were developed for insertion by special forces. Replace the latter with terrorists, and nuclear weapons may have a new role in the future.

The information age RMA

For all of its faults, then, in certain cases the RMA hypothesis seems able to explain the causes and implications of significant changes to the conduct of war. Since the 1991 Gulf War the concept of an information age RMA has been developing. Indeed, as part of the United States' military transformation programme, the current RMA is becoming an operational reality. From the perspective of its supporters, the information age RMA may be the most far-reaching and important RMA to date. Extraordinary claims have been made concerning the significance of contemporary military innovation. Some commentators have even gone so far as to suggest that with the scale and range of the changes to the character of warfare, the nature of war itself is changing.[17] While this

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may be hyperbole, it is certainly true that, much like air power, information technology reaches into every aspect of warfare. Thus, the following analysis of the information age RMA will provide an important test of the RMA hypothesis per se. If the current RMA, with its reach and high profile, falls short of revolutionary change, this will raise further questions about the validity of the RMA hypothesis writ large.

The information age RMA is fuelled by the application of information technology to military affairs. More specifically, the current RMA gains its potency from the integration of various technologies to form systems and networks. Two concepts that typify this approach are Admiral William Owens' 'system of systems' and the associated 'network-centric warfare'.[18] The foundation of information age military systems are advanced C4I (command, control, communications and information), precision munitions and reconnaissance assets. These components are to be brought together via the digitisation of the battlespace, and offer the promise of assured kill. With the end result (the kill) all but guaranteed, the competition in information becomes the deciding factor. Various operational concepts developed from this idea. Among the most notable are dominant battlespace knowledge (DBK), situational awareness and information superiority. In an age of abundant information a section of the defence profession concluded that these changes signalled the demise of Clausewitz (with his emphasis on battle) and the rise of Sun Tzu (who appears to advocate a knowledge-based approach to warfare).[19]

Contemporary RMA enthusiasts were also quick to point out that information technology would have an impact beyond the battlespace. In theory, the digitisation of logistics offers greater efficiency, leading to cost savings and higher operational tempo. However, the innovation that seems to offer the greatest revolutionary change is strategic information warfare (SIW). Akin to strategic bombing, SIW is designed to reduce the will and capability of an enemy by attacking his centres of gravity. However, whereas strategic bombing seeks to destroy industrial age capabilities with high explosive munitions delivered by aircraft, SIW uses the means of the information age. Specifically, SIW targets information and networks using information attack. The latter draws on many of the skills developed by hackers to penetrate information networks. Aside from the theft of information, SIW has various offensive capabilities at its disposal, including numerous types of malicious software.[20] If SIW ever becomes an effective operational reality, it would represent a significant new capability, for it would offer strategic effect, with global reach, at minimal outlay, and no violence.

Aside from a few computer operators conducting the information attacks, SIW would also remove human involvement from the sharp end of war. This is yet another potential development of information age warfare: the removal of human beings from the violent components of warfare. This is becoming increasingly possible due to the development of unmanned vehicles. At the moment, the air dimension is leading the way with increasing use of unmanned aerial vehicles (UAVs). In recent years, UAVs have been given combat missions with the development of unmanned combat aerial vehicles (UCAVs). All these developments that reduce the direct involvement of humans, allied to an increased emphasis on the battle for information, have led some theorists to conclude that we may be moving into a period of humane warfare. In its most extreme form, humane warfare may see the removal of violence altogether from the act of war.[21]

If these visions of information age warfare come to pass, there may be some justification for the claims that the nature of war is changing. War with little or no violence, and with minimal physical human involvement, would be a very different beast from the one Clausewitz wrote about. Indeed, the absence of humans and violence, with the addition of elevated levels of information, would remove many of the main sources of friction from warfare. In this sense, there would be some justification for sidelining Clausewitz's work. A revolution in military affairs would certainly have occurred; perhaps the most significant in the history of human conflict.

Despite the volume of work promoting the information age RMA, the reader is advised not to dispense with his copy of *On War* just yet. As with previous RMAs, the information age variant is unlikely to develop entirely as its ardent supporters have envisaged. Perhaps even more damaging is the fact that, in practice, it already looks far from universal in its applicability. One of the most obvious criticisms levelled against the information age RMA is its focus on regular forms of warfare. In the context of the wars against Iraq in 1991 and 2003 (the initial invasion), American information superiority and abundant use of precision munitions certainly appeared to fulfil the promise of rapid, low-cost victories. However, the insurgencies in Iraq and Afghanistan have clearly revealed the limits of digitised forces. By avoiding the use of large concentrations of uniformed troops, irregular forms of warfare bypass many of the capabilities that are the engine of change in the information age. Rather obviously, multimillion-dollar satellites are of little use when attempting to identify an insurgent from the local population. Likewise, a precision-guided missile cannot interact with the local population to gain trust. In counterinsurgency, the following key tasks are all best performed by foot soldiers: intelligence gathering, reconnaissance, contact with the enemy, and engagement with the local population. And although improved C4I will undoubtedly help in the conduct of these operations, it does little to change the basic roles required for success.

The fate of violence

Clearly, then, as the ongoing conflicts in Iraq and Afghanistan reveal, the aim of removing men from the sharp end of war is far from reality. The regular casualties also clearly indicate that violence continues to be an ever present feature of war. This is due to a number of factors. First, as the events of 9/11 clearly demonstrate, the enemy has a vote on whether violence is to be removed or not. It is naive and egocentric to believe that anyone has a monopoly on the direction future war will take. In fact, as 9/11 also reveals, the enemy may seek to achieve his objectives via an especially violent form of war. This certainly seems to be the case in recent and ongoing conflicts. The beheading of western hostages seems to be designed precisely to break the will of an enemy with little stomach for the violence of war.[22]

Those in the west who promote less violent, humane forms of warfare should consider that the west may have to engage in more traditional forms of warfare in the future. Recent conflicts have not required significant levels of violence. Kosovo, for example, focused more on carefully targeted acts of coercion. And the counterinsurgency campaigns in Iraq and Afghanistan, although they do contain some emphasis on combat with the enemy, are largely centred on security and the development of local

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communities. However, it is reasonable to assume, on the basis of historical experience, that at some point in the future we may witness a return to conflicts characterised by massive amounts of fire power and destruction of the enemy's fielded forces and infrastructure. It is worth noting that the unprecedented destruction of the First and Second World Wars was preceded by a century of limited conflict in Europe. The populations of Europe were not used to killing one another by the millions; and yet that came to pass. Should an enemy akin to Nazi Germany appear, we may once again see instructions along the lines of those given to General Eisenhower before D-Day: 'You will enter the continent of Europe and . . . undertake operations aimed at the heart of Germany and the destruction of her armed forces.' On this basis, Eisenhower notes that 'This purpose of destroying enemy forces was always our guiding principle.'[23]

SIW, the most potent means to remove violence from war, does not fare any better than the other forms of information age warfare under close scrutiny. For this new form of warfare to initiate change in the nature of war, it has to produce independent strategic effect. If it does not achieve the latter, it will merely act as a supporting arm for more traditional forms of military power. Despite various warnings concerning the imminent arrival of SIW as the next big thing, no campaigns of any real note have occurred. The largest example to date is the 2007 attack against Estonia. However, even this incident caused minimal damage and Estonia recovered in a matter of days.[24] The fact that no sustained campaigns have occurred may be telling. It may be that SIW is fundamentally flawed as a strategic instrument. Whatever the causes of SIW's curious absence from strategy, it does leave us with a methodological problem. How do we assess the likely impact of a form of war in the absence of historical data? One answer to this question is to examine the history of strategic bombing, since both forms of warfare share similarities in approach and objectives. Strategic bombing is discussed in detail in Chapter 9. Thus, what follows is a conceptual analysis of the factors that have impacted on strategic bombing, and whether they will have a similar effect on SIW.

The performance of strategic bombing has been retarded by the following factors: operational difficulties; poor strategy; actions of the enemy; resilience of the enemy; intelligence failings; organisational problems; and poor doctrine. All of these are likely to have an equally significant impact on SIW.

For those who have to undertake a bombing campaign, hitting and destroying the target has often proved to be far more difficult than the early theorists imagined. Technical difficulties with aircraft and munitions, alongside navigational problems, have historically reduced the operational performance of air power in its bombing role. This point should not be overplayed, however, since enormous levels of destruction have been achieved over Germany, Japan, Vietnam and Iraq. Nonetheless, when attempting to extrapolate likely outcomes for future campaigns on the basis of works of theory (in the case of strategic bombing, Douhet's *The Command of the Air* is the most significant work), it is important to understand that, in practice, one's capability is prone to decreased performance. That being the case, those hailing the promise of SIW should not assume that the predicted levels of disruption to information systems will occur as predicted in theory.

Even if a campaign goes well at the tactical and operational levels, it can still fail if the strategy is disjointed or lacks focus. During the Vietnam War United States' air

power was able to deliver enormous tonnage of high explosive on the assets of North Vietnam. However, much of the effort was wasted due to strategic errors. Rolling Thunder, a campaign of graduated escalation with an industrial focus, which ran from 1965 to 1968, was inappropriate against a committed enemy that did not rely especially heavily on large amounts of supply.[25] A similarly limited campaign at the beginning of the Kosovo conflict, although hitting its chosen targets, was woefully inadequate given Serbia's leadership and the importance of the province of Kosovo.[26] Those focusing on the tactical and operational potential of SIW would be well advised to remember that success or failure often resides at the higher levels of strategy.

One of the most famous quotes concerning strategic bombing is Stanley Baldwin's 1932 claim that 'the bomber will always get through'. This is simply not the case. During the Second World War Royal Air Force Bomber Command lost 55,500 men. Although a defending power could not stop a large force of bombers causing substantial damage, they could interfere substantially with a mission and ensure that the attackers paid a heavy toll. Likewise, those defending against a coordinated SIW attack will probably be able to limit the damage inflicted on their systems. The security of information systems is already a well-developed field. Britain's online economy is worth an estimated £100 billion.[27] Such a level of trade would not be possible without a decent degree of security. Again, this is not to suggest that SIW will be impotent, but rather to note that it cannot operate in an unmolested manner.

Even when bombing campaigns manage to overcome the best efforts of the defenders, they have still failed to destroy either the will or capability of the enemy to fight. This can be explained to some extent by Adam Smith's comment: 'There is a lot of ruin in a country.'[28] The industrial web theorists overestimated the vulnerability of industrial age economies. The Second World War revealed that modern economies were far more adaptive than had been assumed. Such resilience also applied to the will of the population and leaders of a state under sustained attack. It is tempting to conclude that if societies can withstand hundreds of thousands of deaths from firebombing, they will be able to survive their ATM machines being switched off.

A further flawed assumption of the strategic bombing theorists relates to the intelligence that underpins an air campaign. Accurate intelligence is especially important for a campaign that targets key nodes to destabilise a system. Again, the Second World War is illustrative on this issue. Most of the intelligence for the German economy was inevitably based on pre-war assessments. Thus, assumptions concerning the likely effects of the bombing were outdated once Germany's economy was put on a war footing. Even when intelligence is assumed to be up to date, one cannot assume it is always accurate. The mistaken attack on the Chinese embassy during the Kosovo conflict is an obvious and recent example of intelligence failings during a bombing campaign. It should also be noted that bomb damage assessment during a campaign is notoriously difficult, and therefore the effects are difficult to judge with any degree of certainty. There are also certain pieces of information that are unobtainable or intangible. Establishing an accurate understanding of the workings and minutiae of a modern economy may be beyond the capabilities of extant intelligence organisations. Even more difficult to quantify are human attributes such as morale and will. These intelligence challenges apply to SIW just as much as they do to air power.

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Any military campaign, including strategic bombing and SIW, is conducted by groups of organisations. In the case of strategic bombing, history reveals that politics, bureaucracy and personnel issues often complicate the conduct of a campaign. Bomber Command both benefited and suffered from the combative personality of its commander, Arthur Harris. The campaign in Kosovo suffered significantly from NATO internal politics. Among other things, this resulted in delays, disagreement over strategy, and targets being removed from target lists. SIW will not be immune to these pressures. Indeed, there are already a considerable number of organisations with their fingers in the information warfare pie. Developing a coordinated strategy on this basis will be challenging.

Most forms of modern military power are bridled, for good or ill, with doctrine. In its basic form doctrine (the means by which the military organise their thoughts on their role and educate the current and next generations) can provide a useful coordinating and cognitive function. Ensuring that everyone is singing from the same hymn sheet, or that one's forces are given some indication of the tasks they may be asked to undertake, is undoubtedly important. However, doctrine is only useful if it is correct and relevant. Where this is not the case doctrine can have negative consequences. For example, the USAF doctrine manuals for 1964, the year before the United States began the Rolling Thunder campaign in Vietnam, focused entirely on nuclear conflict against the Soviet Union.[29] Not surprisingly, this was poor preparation for their role in Vietnam. Unfortunately, doctrine tends to reflect the military's habit of jumping from one new concept to the next. In recent years manouevre warfare and effects-based operations have both come to dominate military thinking, despite the fact that they are largely devoid of meaning. Again, these examples should provide sobering reading for those championing SIW as a means to transform war.

As those with a familiarity of Clausewitz's work will realise, this analysis of the failings of strategic bombing, and the possible applicability to SIW, is mostly concerned with the impact of friction on military operations. Put simply, a wide range of factors stand between any military instrument and the realisation of its full potential. This does not mean that SIW cannot make a significant contribution to future wars. However, it does suggest that its transformative powers in relation to the nature of war are likely to be severely curtailed. Without the ability to affect independent strategic success, SIW will only contribute to war, not change it. Indeed, as our analysis suggests, in the relationship between SIW and traditional features of the nature of war, the latter are likely to be the more dominant.

The fate of uncertainty

It is not just in the realm of violence that the information age RMA is unlikely to deliver. Another element of Clausewitz's theory of war that is likely to survive is uncertainty. This is particularly troubling for the proponents of the contemporary RMA because abundant information is the engine of change in the current epoch. Without regular and reliable access to information, dominant battlespace knowledge and total situational awareness will not be possible. As with violence, there are a number of factors that will limit the level of certainty possible in future war. This chapter will now

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discuss the most important of these: intangible elements of war; interaction with the enemy; human interpretation; and information overload.

The information age RMA contains a hidden but important assumption. It assumes that seeing every item in the battlespace is tantamount to knowing everything of value. There is certainly great advantage to be gained from possessing an accurate picture of the battlespace. However, war is not conducted solely by inanimate objects. Military units have a number of intangible features that cannot be seen or quantified to any degree of accuracy. Morale, leadership, intent, level of training; these are all important factors that contribute to the final outcome of a mission. The interception of communications may give some insight into these features, but they cannot be gauged with much accuracy.

As with the control of violence, the levels of uncertainty in war will be influenced by the actions of the enemy. It should not be assumed that information age assets will function unimpaired. An enemy facing such capabilities has various options to offset them. He may adopt a form of warfare (irregular) that does not play to the strengths of a digitised force. Alternatively, as the Serbs did in Kosovo, the enemy may conduct successful acts of deception to undermine an information campaign. He may also have the option of attacking the assets and platforms that gather and transmit information. This could be accomplished with physical or virtual attacks. It is unlikely that an enemy would be able to entirely shut down an information campaign. Nonetheless, he may be successful enough to offset the relative advantage of an RMA force. This certainly appears to have been the case in Kosovo.

In his writings on uncertainty, Clausewitz identified human interpretation as a factor that reduced the utility of information.[30] This is an important point that reminds us once again that war is composed of rational and non-rational forces. A study of intelligence organisations reveals that the process of turning information into knowledge is fraught with difficulties. Some of these difficulties emanate from human frailties. Groupthink, mirror imaging and cognitive rigidity are just three of the reasons why good information can be misused or misinterpreted. Not only does this reduce the value of the information gathered, it may actually increase the levels of uncertainty through the input of false knowledge. In this sense, there are big differences between data, information and knowledge. Turning data into knowledge via information is not a straightforward activity.

One of the recognised dangers of the information age is information overload. Although the software to manage large amounts of information continues to develop, there still exists a real danger that a commander may be swamped by a constantly updating view of the battlespace. Too much information, especially if it contains contradictions, can add to uncertainty. Also, in an age of information plenty, a commander may become too reliant on information, and thus fail to act while he waits for a particular knowledge gap to be filled. Nonetheless, it is surely preferable to have too much information than not enough. However, this only holds true if the information with true value can be identified. Merely gathering information is not enough. It has to be processed and communicated effectively.

It is also worth noting that having good, ample and timely knowledge does not guarantee success. Lifting the fog of war does not automatically lead to victory. Knowledge

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must be acted on. During the campaign in North Africa, after the battle of El Alamain, General Montgomery was in possession of Ultra intelligence that made him aware of Rommel's severe supply difficulties. However, Montgomery's natural caution prevented him from pursuing Rommel's forces with sufficient offensive spirit, and thus the opportunity to destroy Rommel's forces was lost.[31] The gathering and processing of information is but one task in the multidimensional activity of strategy. Accurate information is good to have, but, as Colin Gray notes, it alone does not destroy a single piece of enemy equipment.

This brief analysis of the fate of violence and uncertainty in information age warfare suggests that the current RMA will fail to transform warfare to any significant extent. This is an important conclusion, because the fate of the information age RMA has implications for the entire RMA hypothesis. This is partly because it instigated the whole RMA debate, and also because of the ubiquity of information technology. Not since the maturation of air power has a group of technologies reached so many aspects of strategy. Indeed, it is the wide reach of information technology that underpins many of the ambitious claims regarding changes to the nature of war. A major enhancement of knowledge in the battlespace would destablise the foundations of Clausewitz's work, based as it is on uncertainty, chaos, and the ensuing violence. Thus, if the Clausewitzian nature of war remains largely intact, the transformative capabilities of the RMA have to be questioned. That being the case, the defence profession may need to rein back its promotion of the RMA as a means to understand success and failure in war. Other explanations need to be sought beyond the development and successful application of new technology.

One can go further. It is not just the case that the information age RMA, or indeed any RMA, has failed to transform the nature of war. In fact, the balance of power in this relationship seems to favour the latter over the former. Core elements of the nature of war influence the possible direction RMAs can take. In this way, the nature of war curtails the implications of a potential RMA. Purported RMAs come and go, but the nature of war is constant. There are four elements of the Clausewitzian nature of war that most heavily influence how changes to the character of war may develop: policy (which itself develops from geostrategic conditions), interaction with the enemy, the climate of war, and war's polymorphous character. Individually, these four elements are not so dominant, but taken together they produce an inescapable reality.

Since war is always a rational act in the service of policy (however irrational the policy objectives may seem), a developing RMA will be shaped by policy requirements. Military innovation is rarely contained to just one actor. Thus, different variants of an RMA may develop from the same technological basis. As previously noted, during the interwar period various European powers perceived armoured forces differently. These differences can be partially explained by the different policy objectives and geostrategic circumstances of each state. Nazi Germany, which had an aggressive outlook and the need for rapid victories, concentrated its armoured forces into penetrating spearheads. Whereas France, with an understandably defensive outlook, saw tanks more as mobile artillery that could shore up its defensive positions where needed. In the information age, it is no surprise that the United States, with a range of missions of choice for its dominant conventional forces around the world, should perceive information

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technology as primarily providing an enhancement to those forces. For the United States, the current RMA is really about the digitisation of forces and an increased reliance on stand-off, unmanned capabilities. Those facing the conventional superiority of the United States may understandably adopt a very different approach to the modern epoch. In particular, much smaller actors are more likely to look towards cyberterrorism as their version of the information age RMA. Alternatively, they may opt for a more primitive form of irregular warfare, cherry picking the technology of the information age where it can enhance their operations. In particular, irregular foes have made good use of modern communications and encryption to better coordinate their operations.

Also, as the security environment changes, or perhaps in response to changes in the domestic political context, the policy objectives of a state may change. In turn, new policy objectives may call for different missions or approaches to warfare. Such a change is clearly evident in the aftermath of 9/11 and the end of regular hostilities in Iraq. Counterinsurgency operations in Afghanistan and Iraq required a shift from a platform and technology-heavy approach, to one centred on dismounted infantry.

So disparate are the potential uses of most new technologies that it may be disingenuous to identify a unified, coherent version of an RMA. Much like the multiverse theory in physics, there may be infinite possible RMAs from the same technological basis. Which one we experience will depend on our choices.[32] This even applies to candidate RMAs that on initial viewing appear one-dimensional. For some, the nuclear RMA was characterised by non-use and the dominance of deterrence. However, at different times and in different contexts, nuclear weapons were regarded as instruments of warfighting. In addition, it is plausible that these expensive weapons, which were once the preserve of the great powers, could come into the possession of terrorist organisations. Similarly, for much of its history air power was used solely by state actors, albeit in a number of different roles. However, from the 1970s onward terrorists began to exploit the potential of the third dimension. Their use of air power began with hijackings, and culminated with the attacks of 9/11. Thus, a particular RMA can serve many different policy objectives, and in many different ways.

War is invariably an interactive pursuit. Clausewitz accurately describes it as a duel on a larger scale. Each side has the objective of throwing the other off balance.[33] As noted in relation to both violence and uncertainty, the enemy has various options to offset or circumvent RMA-based capabilities. Edward Luttwak's concept of the paradoxical logic of strategy suggests that any identified strength will eventually be neutralised or will reap diminishing rewards over time.[34] Even Krepinevich notes that innovation sometimes begets further innovation as a countermove. For him, the artillery revolution was eventually negated by a revolution in fortification.[35] With the wars in Iraq and Afghanistan dragging on at the time of writing, it becomes increasingly difficult to identify any substantial and lasting advantages to be gained from digitised forces.

The supposed reasons for the overwhelming victory of 1991, which heralded the true arrival of information age warfare, appear to have been quickly negated. In 1999 Serbia found simple but effective means to reduce the potency of US air power. In 2001 the events of 9/11 demonstrated that American conventional military power could be bypassed entirely. In 2003 Iraqi forces quickly melted away and continued their resistance via an irregular style of warfare. In order to respond to the challenges from 2001

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onward, the United States and its allies have been forced to rely heavily on infantry-based tactics, albeit with occasional support from air power. More than anything else, the wars in Afghanistan and Iraq are characterised by infantry patrols. In this respect, the RMA of 1991 looks increasingly like a meteorite falling to earth. For a brief period it lit up the strategic horizon only to disintegrate when it met resistance. The much hyped SIW, one of the last remaining hopes of the information age RMA, has not yet made a significant appearance.

Clausewitz identified conditions common to all wars, which he classified under the term 'the climate of war'. The conditions in question are danger, uncertainly, exhaustion and chance.[36] They are of interest to a study of RMAs because they complicate military operations in a negative fashion. Thus, optimum operational performance cannot be achieved. Again, this is important because an RMA-equipped force may not be able to achieve the leap in performance that has been identified as a characteristic of an RMA. The first three elements of the climate of war affect humans particularly. The physical and mental trauma of battle reduces the performance levels of those engaged in military operations. When uncertainty is added to the mix, along with chance events such as poor weather or the unexpected death of an accomplished commander, operational performance may fall well below what was anticipated. The purpose of discussing these aspects of the nature of war is to inject a degree of realism into debates concerning the information age RMA. This does not mean that forces with an innovative edge cannot achieve remarkable results. The German invasion of the Soviet Union is a fine example of what can be achieved with a primed, modern military instrument. However, this same instrument eventually ground to a halt, partly because of the weather and the physical condition of the men and equipment. The interwar RMA, most astutely exploited by Germany, breathed its last breath in the frozen air around Moscow in the winter of 1941.

The fourth feature of the nature of war has already been hinted at on a number of occasions in this chapter. War is often equated with the game of chess. However, the two activities differ greatly. Chess is conducted within known and unchanging parameters. Each game uses the same board layout and the same number of playing pieces. These pieces have unchanging capabilities, and each player begins the game with the same mixture of pieces. The whole of the game board and all of the pieces are visible to both players throughout the game. In contrast, each war occurs in unique and changing circumstances. The field of battle is likely to be different on each occasion. Changing climatic conditions may also have an impact on terrain, so that a known field of battle can change dramatically. Also, different environmental conditions will have varying effects on different units. Although some information is likely to be available on the number and composition of the enemy's forces, unexpected reinforcements often arrive at some stage in the battle. More importantly, the forces engaged are rarely symmetrical, and will include unidentified units and/or units with indeterminate capabilities. Put simply, war has a polymorphous character. Not only can war take numerous forms, the character of any particular war may change over time. Thus, the idea that war will develop along the lines dictated by any one actor (in this case the United States) and its chosen approach to warfare is fanciful. The character of future war will be complex, reflecting a range of different styles and strategic needs.

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Technology and war

The debate surrounding RMAs invariably raises questions about the relative importance of technology in the conduct of war. Although the promoters of the RMA hypothesis recognise that new technology is not a prerequisite for an RMA to occur, it seems to be the catalyst for most of the RMAs listed. However, this fixation with new technology is not unique to modern RMA enthusiasts. J. F. C. Fuller, the noted theorist and military historian, is alarmingly definitive on the role of technology in warfare: 'Tools or weapons, if only the right ones can be discovered, form ninety-nine per cent of victory.'[37] Fuller's comment perfectly illustrates one of the main problems with the RMA hypothesis, and the emphasis on technology in particular: reductionism. Strategy is a complex activity, so to reduce success or failure to one of its 17 dimensions is highly misleading. Nonetheless, it has to be conceded that history is replete with instances when one side in a conflict appeared to gain important advantage from a technological edge.

The most obvious modern example of this phenomenon is the 1991 Gulf War, the poster boy of the RMA generation. The Iraqi forces were clearly outgunned in almost every department. Any Iraqi aircraft that attempted to challenge the Coalition's air supremacy did not last long. On the ground, Iraqi tanks were outranged by their opposite number, and any shells they did manage to fire could not penetrate the protective armour on the Coalition tanks. Iraqi technological disadvantages are well demonstrated by the battle for Medina Ridge on 27 February. The 2nd Brigade of the United States 1st Armoured Division engaged Iraq's 2nd Brigade of the Republican Guard Medina Luminous Division. Although the Iraqi forces were well dug in behind a ridge, they still suffered a resounding defeat: 186 Iraqi tanks and 127 armoured fighting vehicles were destroyed. In sharp contrast, the Americans suffered only one fatality and four damaged tanks.[38]

Similarly disproportionate kill ratios can be found further back in history. At the Battle of Omdurman, 2 September 1898, 19,000 technologically superior British and Egyptian forces defeated 52,000 Mahdists. For the loss of 402 casualties, the British and Egyptians inflicted over 20,000 casualties on their enemy. Technology was also important for the Portuguese in their successful attempts to control the Indian Ocean during the fifteenth and sixteenth centuries. Arab vessels in the region had no answer to the fire power of the Portuguese broadside batteries. In 341 BC, the Chinese state of Ch'i heavily defeated the state of Wei, inflicting tens of thousands of casualties on the latter. This decisive victory was significantly enabled by the former's use of crossbows.[39]

Box 4.3 **Technological advantage and the outcome of wars**

Technological advantage translated into success

China 341 BC – Ch'i defeat of Wei
Fifteenth/sixteenth century – Portuguese domination of Indian Ocean
1898 Battle of Omdurman
1991 Gulf War

Technological advantage offset or misused

Nazi Germany in Second World War
1960s/1970s – US war in Vietnam
1980s – Soviet war in Afghanistan

For every example of technological superiority contributing to victory, there is a case in which the technologically superior side experienced failure. The Soviets in Afghanistan and the United States in Vietnam are obvious modern examples of when technological superiority could not be translated into success. However, these are both examples of counterinsurgency, which is a notoriously difficult activity for regular forces. More telling then is the aforementioned case of Nazi Germany, which led the field in many areas of technological, organisational and operational development.

If, as these examples suggest, Fuller is incorrect on the significance of technology, how do we explain the tendency to over-inflate this one dimension? It is most likely the case that analysts responsible for this mistake are focusing too narrowly on the tactical and operational levels. This reflects a tendency to equate military success with long-term political success. There is an assumption that defeat of the enemy's forces, or perhaps control of key terrain, will inevitably translate into an overall positive war outcome. Therefore, having more advanced technology, especially if it is possessed in sufficient numbers, should enable military victory, which, in turn, should enable political victory. However, there is more to achieving military victory than technology. This is even truer for translating military success into lasting positive political outcomes.

As noted by Gray, to succeed in strategy requires competence in all of the 17 dimensions of strategy. To reiterate, these dimensions are divided into three categories: 'people and politics', 'preparation for war', and 'war proper'. Technology exists as its own dimension in the second category, although it can claim to play an important role in five other dimensions: 'economics and logistics', 'information and intelligence', 'strategic theory and doctrine', 'military operations', and 'command'. Clearly, technology underpins the economic basis for military power and plays a central role in both the supply and demand sides of logistics. As noted earlier, certain technological innovations facilitate new forms of economic activity and/or enable more efficient logistic operations. In the modern era, technology has played an increasingly important role in information and intelligence operations. To cite just one example, the exploitation of microwave radiation provides a form of all-weather reconnaissance. Doctrine is influenced by many factors, including history, culture and ethics, to name but three. When it comes to doctrine, technology sets parameters. As the practice of strategic bombing illustrates, theory often helps to mould the development of technology. Nonetheless, the details of doctrine can only be established once it is clear what technology can deliver. As noted throughout this chapter, technology significantly shapes all military operations. It is not alone in performing this function. Terrain, doctrine, time, command, ethics, culture, logistics, adversary and friction also have roles to play, to a greater or lesser degree. Nonetheless, issues of fire power, vulnerability, range, accuracy and

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situational awareness are crucial to the course of military operations, and are all related to the technology in play. Although much of command is concerned with human interaction, and therefore the traits of the commander, the process of command is increasingly dependent on technology. Indeed, as a consequence of the rise of the network, technology may actually transform command in the search for greater levels of delegation.

From this, it is clear that technology has a substantial influence in a number of the dimensions of strategy. However, it still leaves 11 dimensions without a significant technological aspect. More importantly, these 11 dimensions include the most important ones: people, politics, society, culture, geography, adversary and time. It is true that technology may have an impact on these dimensions as well. However, it does not shape them in any substantial way. For example, technology certainly influences the process of politics, and even helps to create political issues. The latter can be seen very obviously in the field of biomedics. However, politics is really concerned with first order issues, such as the value of human life, inequality and freedom. Technology impinges on these issues, but it is not at the core of these debates. In this sense, technology reaches far and wide, but does not heavily influence why wars are fought. This is left to politics, and thus to people.

If we use the dimensions of strategy to try and understand success and failure in war, technology does not feature especially prominently. Why did Germany fail in the Second World War? To answer this question one would look to the personal politics of the Nazi leadership, and conclude that Germany bought into an unreachable political vision. In addition, although Germany fought hard in defence of Nazi ideology, the latter was a potent motivating factor for the Allies from an ethical standpoint. Nazi Germany was simply too ambitious and too dangerous to be left intact.[40] Thus, the Allies were able to overlook their differences, and bring together their massive economic resources to overwhelm their common enemy. These dominant dimensions were powerful enough to overcome astute tactical and operational performance by the Germans.

When examining success and failure in the Second World War from a technological perspective, the conclusion is something of a mixed bag. Germany led in a number of fields: tank design, jet aircraft, and cruise and ballistic missiles. However, partly due to an emphasis on advanced technology, Germany did not have enough technology. To cite one crude example, during the Normandy campaign the Allies had sufficient numbers of inferior tanks to exhaust the rounds of the much less common German Tiger and Panther tanks. When a Tiger had fired its last round, there were normally Allied tanks still available to move in for an easy kill.[41] Thus, it seems that in trying to explain the outcome of the Second World War, it is more profitable to focus on those dimensions that concern human issues, rather than on the technological balance of the war.

Even if we restrict our analysis to the lower levels of strategy, a focus on technology is still inadequate. As important as technology can be in the battlespace, other important factors that influence performance include command, logistics, morale and training, to name but four. So, even at the lower levels of strategy technology is an inadequate explanation for the outcome of events. This becomes even more so when our analysis includes the higher levels. This conclusion suggests that as a means to

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understand war and improve performance, the RMA hypothesis is insufficient. Its focus on technology, even if it includes operational and organisational factors, is far too narrow. Success in strategy requires mastery of many factors, the most important of which have human concerns at their core. Such concerns are often intangible and therefore difficult to quantify and control. This may be one reason why some find it preferable to focus on technological parameters, which can be quantified and controlled to a far greater degree.

Conclusion – RMA as a methodological and practical tool

One could be forgiven for thinking that the serious flaws identified in the RMA hypothesis leave it empty of value. However, that is not the case. The RMA hypothesis has both methodological and practical value. While the exploitation of new technology can neither create a uniform style of future warfare nor transform the nature of war, it is important. The previous emphasis on the higher levels of strategy is justified, but is not designed to reduce the importance of the tactical and operational levels. Actions on the battlefield can have important outcomes. As Clausewitz noted, the enemy can change everything with a successful engagement.[42] Good strategy can be undone by failure in the battlespace. For example, although ambitious, the strategic rationale behind the Gallipoli landings was logical enough. Perhaps this bold move could have changed the complexion of the First World War. However, we will never know because the tactical execution was so poor. It is also worth considering what might have occurred had D-Day gone badly for the Allies. At minimum, the war in Europe would undoubtedly have lasted much longer. However, in the case of the war against Germany, failure on 6 June is unlikely to have changed the final outcome of the war. The Allies would surely have tried again to remove Nazism from the continent, and the Soviet offensive against Germany would have continued into Berlin. Nonetheless, even if tactical success cannot completely overturn disadvantage at the higher levels of strategy, it may reduce the costs of war or perhaps even force the winning side to make some concessions. That being the case, it is worth exploring innovations that promise tactical and operational advantage.

It is also true that, although less significant than the RMA enthusiasts would have us believe, change in the character of warfare does occur. In addition, history also suggests that adapting quickly to change, or even leading said change, can confer significant advantages. Even if these relative advantages do not last long and do not directly lead to outright success, it is surely preferable to exploit them while you can. This assumes, of course, that the costs are not too high and the efforts will support one's policy objectives. Thus, from both a methodological and practical position, it is wise to hold on to the notion that change occurs and may be advantageous. The RMA hypothesis should also be congratulated for identifying the means to exploit innovation in a sensible manner. Simply bolting on new technology to existing capabilities is unlikely to confer substantial advantages. It is important to explore new organisational and operational forms to fully realise the potential of new technology.

From an academic perspective, the RMA hypothesis may be useful. Although continuity may be more empirically compelling than moments of revolution, it is useful to

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intellectually accept that the latter can occur. In our efforts to explain how the conduct of warfare has changed from the age of the Hoplite (to pick an important but far from definitive starting point in classical history) to the complex joint operations of the current age, it is tempting to focus on relatively slow evolutionary change. For much of the time this would be accurate. However, there have undoubtedly been moments of genuine and quite dramatic change. The two most likely candidates for this have come in the twentieth century. The invention of heavier than air aircraft and nuclear weapons have both had a rapid and dramatic impact on warfare.

We are left to conclude that innovation is real, and technology is important. The problem arises when those promoting the significance of these oversell them as a means to change the nature of war, or as an excuse for iconoclastic writings. Those promoting the information age RMA are particularly guilty of these sins. Despite the many claims to overturn the Clausewitzian nature of war, history, ongoing conflicts, and the sensible application of strategic theory, all suggest that war will continue to be characterised by uncertainty and violence. In particular, policy, the enemy, the climate of war and war's polymorphous character together (what Clausewitz codified as friction) ensure that no innovation will transform war's true nature. Ironically, changes in the character of war do not alter the nature of war. Rather they are shaped by it. In this way, the nature of war is self-preserving.

Key points

1. The modern RMA hypothesis has diverse origins, but the 1991 Gulf War stands out.
2. RMAs are primarily driven by technology and associated operational and organisational adaptation.
3. The information age RMA promises a change to the nature of war, but falls short of this lofty goal.
4. Technology is only one of the many dimensions in strategy, and not a decisive one.
5. Whether valid or not, the RMA hypothesis has utility to both the theorist and practitioner.

Questions

1. **Are RMAs merely academic constructs?**
2. **Will the information age RMA change the nature of war?**
3. **How significant is technology in the practice of strategy?**
4. **Does the RMA hypothesis have value?**

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5 Intelligence

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Reader's guide: Intelligence bureaucracies are a new historical phenomenon; theoretical work has focused on improving the process by which intelligence agencies support strategic planners; intelligence agencies as direct actors in strategy; intelligence agencies cannot avoid involvement in politics.

Introduction

Over 3000 years ago, Pharaoh Amenhotep III of Egypt boasted of his ability to collect information about the Babylonian army.[1] Over 2000 years ago, Chinese strategic thinker Sun Tzu proposed methods for integrating intelligence operations into the rest of strategy, adding that a commander who neglects such matters 'is no general' and that a ruler who tolerates such an incompetent is 'no master of victory'.[2] Nevertheless, by the nineteenth century, what former CIA director Allen Dulles called the craft of intelligence had become a lost art. Strategic thinkers have only begun the process of reinventing it.

This chapter outlines key issues that have arisen as strategists rediscover intelligence. The first section notes key historical events that aroused contemporary interest in this topic. A second section discusses ways in which theorists have depicted the relationship between intelligence and strategy, and how their work may help policymakers organise intelligence services to keep strategists as well informed as possible. These theoretical concepts, however, are not fully satisfying. A third section observes that intelligence agencies perform functions that go beyond passively gathering information. The final section suggests that, despite theorists' attempts to distinguish between intelligence and the strategic planning it supports, intelligence is an organic part of strategy, which raises many of the same moral, political and operational issues as war itself.

The rediscovery of intelligence

Spies, scouts, cryptographers, cryptanalysts, military cartographers and other intelligence practitioners have been active in every historical era. Strategic thinkers, however, have not always fully appreciated their uses. Moreover, governments have not always maintained institutions to perform the combinations of functions typical for modern intelligence agencies. The rediscovery of intelligence is not so much the rediscovery of any particular practice as it is the rediscovery of those practices' value and the

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emergence of organisations dedicated to employing those practices for strategic purposes.

Carl von Clausewitz noted several of the key reasons why strategic thinkers have historically been reluctant to devote too much attention to these matters. The fact that 'many intelligence reports in war are contradictory; even more are false and most are uncertain' was only the first of Clausewitz's concerns.[3] Worse yet, in Clausewitz's view, this barrage of dubious but frequently alarming information may actually make it harder for commanders to assess situations rationally. 'The senses make a more vivid impression on the mind than systematic thought,' the Prussian warns, and '[war] has a way of masking the stage with scenery crudely daubed with fearsome apparitions.' Such 'apparitions' frighten commanders into wavering at precisely the moments at which it is most important for them to be resolute, and the more information commanders attempt to process, the more of these 'apparitions' they will have to contend with.

The scholar John Ferris, who has explored Clausewitz's writings on this topic in depth, reminds us that the Prussian accepted that intelligence could be more useful under favourable circumstances. For instance, Clausewitz suggested that intelligence reports might be more valuable for higher level planners, who have less need for boldness and more time to reflect.[4] Other early nineteenth-century strategists, notably Jomini and the Duke of Wellington, promoted more optimistic views of intelligence even for officers in the field.[5] Nevertheless, although strategic thinkers of the nineteenth and earlier centuries commonly recognised that intelligence reports could be useful under appropriate circumstances, most would have concluded that such reporting was not consistently useful enough to justify great investments of either resources or attention. Those who followed Clausewitz's line of reasoning would have added that overinvestment in intelligence can easily become counterproductive.

Despite such scepticism, an increasing number of nineteenth-century political actors formed intelligence-gathering organisations. In 1866, shortly before Prussia invaded Austria, the Prussian king established a bureau known as the Secret Field Police to collect militarily valuable information by spying on foreign governments. Approximately four years later, when revolutionaries attempted to assassinate Tsar Alexander II of Russia, the Tsar founded an agency called Okhrana to hunt down his political enemies throughout the world. In 1881 a patriotic Japanese citizen named Kotaro Hiraoka took it upon himself to help his country develop up-to-date military and industrial capabilities by forming a secret organisation known as the Black Ocean Society to perform espionage abroad. Similar events took place in numerous other countries.

There was nothing new about spy networks or undercover police forces. Queen Elizabeth I of sixteenth-century England and her contemporary Toyotomi Hideyoshi, to pick but two examples, maintained secret services. Their successors, however, allowed those services to wither. The states and other political actors of the late nineteenth century not only preserved their information-collecting organisations but used them for an increasing variety of purposes.

One of the reasons why such agencies flourished in this era was that new forms of technology were providing them with new kinds of information to collect. By the late 1800s, for instance, diplomats around the world had begun to send much of their most

sensitive correspondence by telegraph. Russia's Foreign Ministry cooperated with Okhrana to intercept such messages.[6] Older forms of spying supported the newer ones. Since many diplomatic telegrams were encrypted, Okhrana turned to its global network of informers and undercover agents to acquire codebooks and cipher keys. One notes that this process allowed Okhrana, which had been powerful enough when its primary function had been crushing revolutionaries, to acquire a role in virtually every aspect of Russia's foreign policy.

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Box 5.1 **Types of intelligence data**

The intelligence community classifies the sources of strategic information into six widely recognized categories. These are as follows:

Signals intelligence (SIGINT) is a broad category encompassing attempts to eavesdrop on the various signals one's targets emit in the course of going about their activities. The most prominent types of SIGINT are communications intelligence (COMINT) and electronic intelligence (ELINT). COMINT consists of intercepted messages. Methods for obtaining it range from satellite eavesdropping on radio transmissions to the old-fashioned equivalent of opening mail. ELINT consists of other information gained through electronic monitoring. Locating a radar site by tracing its emissions back to their source is a classic example of this practice. Indeed, some practitioners refer to a subcategory of ELINT known as radar intelligence, or RADINT.

Imagery intelligence (IMINT) involves taking pictures, typically from aircraft or satellites. These pictures may be photographs in visible light. They may also depict targets as seen by radar, infrared cameras or other types of sensors.

Measurement and signature intelligence (MASINT) is another broadly defined category, covering data from all technical sources other than SIGINT and IMINT. Examples of MASINT include collection of air samples to monitor industrial activity, the use of microphones to detect the footsteps of people moving through given areas and the use of seismographs to gather information on underground nuclear explosions.

Human intelligence (HUMINT) includes all information derived from human sources. These sources may be spies working undercover in enemy organisations, but they may also be diplomats reporting on what they have observed while doing their jobs, scientists explaining their research, travellers offering information on things they have seen while visiting other countries or prisoners responding to interrogation, to name but a few possibilities.

Open-source intelligence (OSINT) consists of legally available information taken from the media, the internet, museums, published books, telephone directories, national archives, corporate reports, government policy documents and other publicly accessible sources. Sherman Kent famously estimated 'of the things our state must know about other states, some 90% may be discovered through overt means'.[7]

Geospatial intelligence consists of information gained by making and using maps.

The telegraph, the telephone and the wireless radio also accelerated the speed with which intelligence bureaucracies could take in information from far-flung sources and send it back out in a useful form. Theorist Michael Handel suggests that this development made Clausewitz's doubts about intelligence obsolete.[8] By the time of the First World War, intelligence organisations routinely provided strategic planners with information which made it easier – not, as Clausewitz feared, more difficult – for military commanders to make critical decisions with confidence. An example of this point comes from the 1914–18 war at sea, where British naval commanders had to decide how many of their ships to use on missions to distant parts of the world and how many to hold back to counter-raids by Germany's surface fleet.[9] One of the main reasons why British admirals succeeded at balancing these conflicting demands was that the naval intelligence organisation known as Room 40 was able both to warn them of coming German attacks and to reassure them during periods when it was relatively safe for them to send their forces elsewhere.

Meanwhile, the tools and methods of warfare grew ever more complicated. Chapter 7 discusses the increasing complexity of land warfare in detail. Similar processes were underway on the sea, in the air, and, later, as Chapter 10 discusses, in space. The new ways of waging war brought new ways of collecting and processing intelligence. Radar, sonar, aerial photography, sound-ranging equipment for locating enemy artillery and direction-finding equipment for locating enemy radio transmitters are but a few well-known examples. As armed forces made increasing use of the wireless, they provided eavesdroppers with an increasing volume of messages to intercept, and many other new forms of technology had side effects such as radiating heat, emitting radio waves, producing distinctive sounds, or otherwise generating signals for enterprising intelligence organisations to detect.

The increasing complexity of warfare also increases planners' need for information, profoundly and at every level of strategy. In the realms of tactics and operations, the deadliness of modern weapons has made it more vital than ever for commanders to learn where their enemies are and how their own forces might obtain some sort of advantage. In a similar vein, modern weapons systems allow one to strike one's opponents from a great distance away – if one knows where to aim. At higher levels, the increasing importance of new weapons and other technological improvements has made it more important than ever to monitor other strategic actors' technical research. Information about other actors' plans and political relationships has been invaluable in every era, and remains so today.

If the First World War reminded strategic thinkers of the uses of intelligence, the Second World War reminded them of the importance of handling it skilfully. Although Soviet leader Joseph Stalin received reports suggesting that Adolf Hitler planned to attack the USSR in the summer of 1941, he refused to believe these warnings, and the German invasion caught Russian forces woefully unprepared. A few months later, Japan inflicted another devastating surprise attack on the American Pacific Fleet at Pearl Harbor. US policymakers later realised that various branches of their country's military and diplomatic establishment had possessed pieces of information that might have predicted the coming raid, but that they had collectively failed to recognise the significance of those data. British strategists, meanwhile, enjoyed a historically unprecedented

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awareness of their enemies' plans and capabilities, not merely because Polish cryptanalysts had provided them with knowledge and technology that allowed them to break many versions of Germany's widely used Enigma cipher, but because they established an exceptionally efficient organisation for decrypting and processing great volumes of intercepted enemy transmissions at Bletchley Park, and because this organisation was unusually successful at establishing cooperative relationships with combat commanders. Such failures and successes underscored the need for research to identify effective ways to use modern intelligence organisations as an instrument of strategy.

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Box 5.2 **The intelligence cycle**

The 'intelligence cycle' is a concept that summarises the steps intelligence agencies must take in order to provide strategists with 'enabling information'. According to common definitions, the intelligence cycle consists of the following five activities.

Planning and direction. In this phase of the cycle, authorities determine what strategists need to know, and how intelligence organisations can best provide them with that knowledge. These authorities need to prioritise intelligence operations and allocate resources to support them. On occasion, they may need to make judgements about the degree of risk they are willing to accept to achieve certain goals.

For planning and direction to be effective, intelligence professionals must work closely with the political and military leaders they serve. If intelligence officers do not know what strategic planners require of them, they are unlikely to produce useful material, and if strategists do not thoroughly understand intelligence operations, they may not know what to ask for. The fact that intelligence agencies must often restrict information about their operations to those with a clear 'need to know' further complicates communication between information producers and information consumers. The tensions between the ideal of intelligence agencies as politically neutral reporters of fact and the reality that practically everything intelligence agencies do involves political judgement dominate this phase of the intelligence cycle. Therefore, decisions about exactly who should be involved in this phase of the intelligence cycle and what their roles should be are both critical to strategic success and highly controversial.

Collection. In the planning and direction phase, strategists attempted to ask useful questions. In the collection phase, intelligence professionals gather information which they believe will help them provide meaningful answers. (See Box 5.1.)

Collection is the most dramatic part of the intelligence cycle and can also be the most dangerous and expensive. Nevertheless, without effective planning and direction, even the most productive collection programmes can be a waste of effort. Strategists and intelligence analysts have access to far larger quantities of information than they can absorb. The challenge of intelligence collection does not normally lie in obtaining a greater volume of facts – it lies in obtaining key bits of information which make the rest of the data make sense.

Processing and exploitation. In this part of the cycle, intelligence professionals convert the data acquired in the collection phase into a usable form. Processing includes activities ranging from decrypting enciphered material to explaining scientific measurements in terms the typical intelligence analyst can understand. The processing and exploitation phase also involves determining which pieces of information are worth considering further, how much faith to put in their accuracy, and who should have access to them. Decisions on these matters may be hotly contested, and may involve far-reaching political issues.

Analysis and production. In this phase, intelligence professionals review the processed data and attempt to determine what they actually reveal about issues of strategic interest. A common problem in this stage of the cycle is that different branches of a country's intelligence services may have learned different things about matters of national importance, and that analysts working for those different branches may fail to share their knowledge. For this reason, reformers often campaign to centralise intelligence organisations as much as possible, so that a single set of analysts gets to see all the available information. Centralisation, however, can never be more than a partial solution. No matter how unified a nation's intelligence community may appear on paper, no single team of analysts will be able to cope with more than a tiny fraction of the information its collectors produce.

Even the most centralised agency will need to divide itself into numerous departments, which will eventually fail to communicate with one another. Moreover, different consumers of intelligence may have a legitimate need for specialised agencies dedicated to producing the types of information they require. The problems of generating information to support naval operations, for instance, may be quite different from the problems of generating information to support a nation's diplomatic services. One would be imprudent to expect any single organisation to produce both kinds of information equally effectively.

Dissemination. At this point in the intelligence cycle, analysts report their findings to political and military leaders outside the intelligence community. The dissemination phase involves similar judgements and controversies as exploitation, often on a larger scale. After strategic planners have read the intelligence community's reports, they may decide that they need further information, or that they need to monitor the situations they have already investigated in order to keep their knowledge up to date. In other words, they may return to the planning and direction phase, beginning the intelligence cycle once again.

Informing strategists

In 1951 a student wrote to American intelligence analyst Sherman Kent and asked him for information about his work. 'People who know about spy systems,' Kent replied, 'do not write about them.'[10] Over the next few years, however, Kent took a leading role

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in changing that situation. Kent urged his colleagues to record what they had learned about intelligence work, and to collect their writings into a coherent body of literature. Not only would this literature help newcomers to the intelligence services learn what had worked best in the past, it would help more innovative members of the profession analyse earlier methods in order to improve upon them.

One of the most important functions of this literature, Kent suggested, would be to reflect on the 'fundamental question of what we [in the intelligence profession] are trying to do. What is our mission?'[11] Although Kent noted that this question might have many valid answers, he suggested a widely accepted one in his book *Strategic Intelligence for American World Policy*. Michael Herman, also a veteran intelligence officer and leading thinker on the role of intelligence in strategy, recapitulates Kent's position in his more recent classic *Intelligence Power in Peace and War*. Intelligence, Kent and Herman agree, is 'a kind of knowledge'.[12]

The main reason why this knowledge is valuable, Herman elaborates, is that it can serve as an 'enabling facility, helping the world of action exercise power and influence'.[13] Indeed, Herman adds, there are times when simply possessing certain information may allow one to exercise power over others. The mission of the intelligence services, then, becomes that of providing political and military leaders with the most 'enabling' information possible. Elsewhere, Herman refers to strategically useful information as 'product', suggesting the image of intelligence services as a sort of knowledge factory, churning out material for others to consume.

Herman emphasises that real intelligence agencies do many other things as well. Nevertheless, it is often useful to think of intelligence services as knowledge factories, because this helps one identify ways for them to serve their consumers more efficiently. Workers in ordinary factories mass-produce complex items by performing a sequence of clearly defined tasks along an assembly line, and theorists commonly model the process by which intelligence services provide strategists with large quantities of complex information as a sequence of clearly defined tasks known as the intelligence cycle. Theorists may then go on to look for ways that intelligence agencies might change their methods of performing these tasks in order to 'enable' strategists to the maximum degree possible.

If intelligence agencies exist to 'enable' strategists, intelligence professionals must resist the temptation to meddle with strategy itself. The 'knowledge factory' model also implies that intelligence professionals must resist all pressure to distort their findings for political reasons, even if the strategic planners who employ them are the ones applying the pressure. To the contrary, intelligence professionals must produce a thorough, objective analysis of the available facts, and let others decide how to act on it. An engineer who believes that an airliner designed to certain specifications would be unsafe has a duty to say so even if his or her superiors want to manufacture such an aircraft, and an intelligence analyst whose work suggests certain conclusions about strategic matters has a similar duty to report them even if decision makers find those conclusions inconvenient.

The 'knowledge factory' model also suggests a restrained approach to dealing with opposing intelligence organisations. Most states devote at least some of their intelligence resources to gathering information about others who may be trying to gather

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information about them. Terrorist organisations and other non-state strategic actors do the same. This process is known as counterintelligence, or CI. Since opposing intelligence agencies are likely to be adept at keeping their secrets, counterintelligence is among the most difficult activities intelligence organisations perform. In Herman's words, 'this raises the question of how much effort it is worth.'[14]

If the primary purpose of intelligence is to supply higher level strategists with an information 'product', counterintelligence operations can easily become a wasteful distraction. One will always need to perform a certain amount of counterintelligence as part of one's efforts to protect one's own secrets. Nevertheless, great volumes of detail about opposing intelligence agencies and their practices may not seem particularly useful. Certainly, strategists from beyond the intelligence community are unlikely to know what to do with it.

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Manipulating enemies

Other researchers observe that the model of intelligence services as ideologically neutral knowledge factories is idealistic at best. Intelligence professionals, like the rest of us, face political pressures of many kinds. Individuals must develop their careers. The agencies that employ them must manoeuvre for influence and resources within larger bureaucracies. These bureaucracies must respond to politics at the national and international levels.

Some might be willing to sacrifice their jobs for their principles, but they will never purge intelligence of politics. In intelligence work, the full truth is almost never obvious. Practically all intelligence reports include a substantial amount of interpretation, and since there is no sure way to know which interpretations are correct, there is no sure way to tell the difference between integrity and mere stubbornness. For the same reason, there will seldom be any way for even the most self-sacrificing intelligence professionals to prove that they are right. Indeed, those who practise office politics adroitly may actually be more effective at providing strategists with 'enabling' information than those who remain aloof, because they will normally find it easier to get strategic planners to listen to them.

These facts limit what one can expect from intelligence organisations. Intelligence professionals may strive for objectivity wherever they can, but they will never truly attain it. Intelligence reports will always be vulnerable to political influence – and thus to politically influenced mistakes. Uncertainty, will always dominate intelligence work, just as it will always dominate war. One might add that the fact that uncertainty will always dominate intelligence work is among the reasons why uncertainty will always dominate war.

Moreover, strategists can take advantage of the political dimension of intelligence. One may attempt to manipulate the decision-making processes within opposing organisations, including opposing intelligence organisations. Under most circumstances, the people who possess the most useful skills and resources for such intrigues will be the members of one's own intelligence services. For an example of how this works in practise, one might examine the methods Anglo-American forces used to deceive German commanders about Allied plans to invade western Europe in 1944.

Although the British and Americans had committed the bulk of their available resources to an amphibious landing in Normandy, they convinced German decision makers that they were preparing much larger forces to attack elsewhere. The Germans assigned 22 divisions to guard against the imaginary threat. Other Allied deception operations helped persuade the Germans to hold back another 30 divisions in the Mediterranean. German commanders continued to waste resources protecting themselves from the fictitious forces for over a month after the Normandy landings had taken place.

The Allied deception campaign is noteworthy because the British and Americans fooled their enemies on such a vast scale. Although the Allies made full use of ruses such as dummy tanks and misleading radio traffic to make their phony army appear real, it would have been almost impossible for these tricks alone to have influenced so much of the German command structure about such major issues for so long. To begin with, decoys only work if one's enemies can see them, and, by 1944, Germany's long-range reconnaissance capabilities were severely limited. Moreover, as Clausewitz noted, military officers in combat continually receive great volumes of alarming and frequently conflicting reports. Competent commanders grow accustomed to this, learn to weigh the reports against one another, and steel themselves against the urge to overreact. One may always hope to dupe individual opponents at a critical moment, but if the Allies had merely provided their enemies with a few spurious radio intercepts and troop positions sightings, the German leadership would have been unlikely to alter its overall plans in any dramatic way.

To influence Germany's overall strategy, the Allies had to find a way to transmit lies directly to the leaders of the Third Reich. The lies had to convince sceptical listeners to believe them – and to help those listeners override the others who would inevitably choose to believe other things. The lies had to include details that would maximise the chances that the German commanders would respond in ways that the Allies wanted them to respond. Moreover, as time passed, the Germans would almost certainly obtain increasing amounts of accurate information. Therefore, the Allies needed to embellish their lies in ways that would make them appear plausible for the longest time possible.

Advocates of the 'knowledge factory' model of intelligence might note that the Allied deception programme depended on large volumes of 'enabling information'. The programme's organisers needed to know the German officers and institutions they most needed to deceive. They needed to know what accurate information their targets possessed, they needed to know what sort of false information their targets would be most likely to find believable, and they needed to know how their targets were reacting to previous deceptions. Allied intelligence services combined data from many sources to provide such information, finding their ability to decrypt key enemy ciphers particularly valuable.

Not only did Allied intelligence organisations indirectly support the deception programme by providing its planners with relatively accurate information, they played a direct and vital role in delivering false information to the Germans. Britain's internal security service, MI-5, had identified all German spies operating in the United Kingdom. Rather than merely arresting the Germans, MI-5 had offered them the opportunity to become double agents.

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A few of the German agents refused, and the British executed them. The rest of the Germans were available to support Allied deception operations by sending the Germans whatever reports their British controllers wished. Britain's intelligence services had acquired yet more moles in the German intelligence apparatus through a variety of means, including pure luck. One of the most valuable double agents in the deception programme, a man named Juan Pujol Garcia, known to his British handlers as 'Garbo', was a Spanish citizen who had volunteered his services to Britain's MI-6 intelligence agency out of personal opposition to Nazism. When MI-6 proved reluctant to accept him, he independently persuaded the Germans to use him as a spy, so that he would be more useful to the British.

During earlier phases of the war, the German High Command had been dubious about human intelligence. In that period, German officers had normally checked the accuracy of spy reports by comparing them to information from other sources. Therefore, the Germans of that era had been harder to fool. By 1944, however, the Allied air forces had largely driven German reconnaissance aircraft from the skies. The Allies had also significantly improved the security of their communications systems. Therefore, German leaders turned increasingly to human intelligence as their only means of acquiring information from within their enemies' homelands, and Britain's networks of double agents became increasingly useful for misinforming them.

MI-5, MI-6 and their sister agencies put themselves in a position to manipulate the Germans through a combination of tight security measures, effective information collection and the masterful practice of counterintelligence. The British success required planning and sustained effort. By the time of the Normandy invasion, MI-5 had been developing its network of double agents for over 10 years. One notes that the British security service began the process while Britain and Germany were still at peace. (One also notes that the Germans were already spying on Britain at that time.) MI-5's work undoubtedly consumed resources that other agencies might have used to collect greater amounts of 'enabling information', but British planners determined that the opportunity to turn Germany's own spy network against its creators was worth the investment.

If it is possible to infiltrate and control enemy organisations, it is equally possible that one's enemies will use similar methods against you. The most reliable way to unmask enemy secret agents is to conduct espionage against the opposing intelligence agencies that operate them. Thus, spies end up spying on spies. The side that manages to place 'moles' in the highest positions within the opposing side's institutions will enjoy the best ability to uncover enemy plots, and will also be able to manipulate its opponents most effectively.

Since the process of convincing enemy personnel to become double agents begins with effective counterintelligence, the counterintelligence branches of opposing organisations become particularly attractive targets for subversion. The 'knowledge factory' model suggested that counterintelligence was useful as a protective measure, but secondary to the intelligence services' main purpose of acquiring information. Those who view intelligence agencies as tools for actively manipulating one's opponents see things differently. To them, counterintelligence is the most important function of those agencies.

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The manipulation model also conflicts with the knowledge factory model in more basic ways. Those who assume that an intelligence agency's main purpose is to generate 'enabling information' will wish to disseminate as much 'product' to as many 'consumers' as rapidly as possible. Those who assume that an intelligence agency's main function is to conspire against opposing conspirators will want to scrutinise every new report as a possible enemy deception, even at the cost of discarding interesting findings. Moreover, those who emphasise the manipulation model will wish to restrict information to the smallest number of people possible, in order to minimise the chances of betrayal. Although practically all who subscribe to the 'knowledge factory' model will agree in principle that it is important to guard against deception and practically all who subscribe to the manipulation model will agree in principle that intelligence services must, at some point, provide useful information to outside political and military leaders, adherents of these two views often find it frustrating to work together in practice.

Conclusion

Herman compares debates over the most effective ways to use intelligence agencies to debates over the most effective ways to use aircraft.[15] Navy and army commanders commonly want planes to support operations by ships and ground forces. Air force commanders would usually prefer to fight opposing air forces for control of the skies, arguing that once they secure air supremacy, they will be able to fly where they like, bomb what they wish, and perform grander strategic feats than they could ever accomplish as mere adjuncts to other branches of the armed services. In a similar fashion, advocates of what this chapter has called the 'knowledge factory' model wish to use intelligence services in a support role, whereas advocates of aggressive counterintelligence wish to use intelligence services against other intelligence services as a first step towards perpetrating grand feats of subversion.

Although Herman ends the analogy with this point, one may take the comparison further. Strategic bombing raises profound ethical dilemmas, particularly when it involves targeting civilians. Intelligence strategy poses even broader moral and political questions. Moreover, those who answer these questions wrongly risk outcomes ranging from embarrassing media exposure to military defeat. Legend has it that intelligence professionals refer to the unwanted side effects of their work as 'blowback'. Even milder versions of blowback may have far-reaching effects on one's political relations and strategic options.

The risk of blowback is particularly obvious when intelligence agencies use clandestine methods in attempts to manipulate other organisations. Although few now object to MI-5's use of undercover agents to influence German military strategy in the Second World War, many may question the American Central Intelligence Agency (CIA)'s use of secret contacts within Italian political parties to influence the outcome of elections in the early years of the Cold War. More recently, journalists have criticised the CIA's covert support for the Afghan guerrillas who fought Soviet forces in the 1980s, alleging that one of the so-called freedom fighters who benefited from American aid was none other than Osama bin Laden. These journalists' claims remain unproven but troubling.

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Although many covert operations appear dubious in hindsight, it is difficult to come up with a simple rule for distinguishing between wise and unwise uses of clandestine influence. One must recall that even Britain's successful and morally palatable campaign to manipulate the German intelligence services began at a time when future relations between the United Kingdom and Germany remained in doubt. British planners correctly determined that the Germans were destined to be their enemies – but American intelligence officers of the 1950s and 1980s might equally well have determined that the Soviet Union was dangerous enough to justify the CIA operations in Italy and Afghanistan. One cannot make intelligence strategy without making political judgements, and one cannot implement intelligence strategy without incurring political consequences.

Since intelligence strategists must work in secret, it is difficult for governments of any type – including democracies – to control them. Most countries have instituted oversight procedures designed to allow legislators to scrutinise clandestine activities without compromising security. Such procedures, however, inevitably involve uneasy compromises. Intelligence officers will always find that oversight procedures limit their capabilities. Other citizens will always live with the risk that their country's intelligence services may act outside the law. These illegal actions may violate individuals' rights, undermine constitutional processes, and commit the nation to dangerous policies.

These risks are most obvious when intelligence agencies use force and subterfuge to manipulate those they have deemed to be enemies. Thus, Sherman Kent urged the US government to prohibit such operations in peacetime.[16] Nevertheless, even when intelligence agencies limit themselves to the role of knowledge factories, their work intertwines with political debates which shape the destiny of nations. Strategic thinker Roberta Wohlstetter developed this point in her classic comparison of American intelligence before the 1941 Pearl Harbor raid and the 1962 Cuban Missile Crisis.

Between 1941 and 1962, the US government repeatedly overhauled its intelligence services to maximise their efficiency. US intelligence services also acquired valuable new technology, notably the U-2 reconnaissance aircraft. Nevertheless, the intelligence 'product' regarding the missile crisis originally contained gaps and ambiguities as serious as those that misled American planners in 1941.[17] The reason why American strategists performed more effectively in 1962 has less to do with the initial quality of their information than with the fact that they acted more decisively on it. One of their most important decisions was a decision of intelligence strategy – they increased the frequency of U-2 flights over Cuba in order to clarify uncertain points in their knowledge.[18]

In 1941 the American government had been unwilling to acknowledge the likelihood that Japan would attack, and hesitant to provoke the Japanese in any way.[19] American leaders in 1962 were reluctant to believe that the Soviet Union would place missiles in Cuba and did not wish to risk a confrontation that might precipitate nuclear war. Nevertheless, during the missile crisis, US leaders chose to question their assumptions and adopt risky new policies. American strategists of 1962 made better choices, not on the basis of superior knowledge, but on the basis of what proved to be superior political judgement. Clausewitz's observation that war is merely a continuation of political intercourse with the admixture of other means seems to apply equally well to intelligence, and if the interaction between civilian governments and the armed forces has

always been complex, the interaction between civilian governments and their intelligence services may be even more so.

Throughout much of the world, the events of the early twenty-first century have given intelligence services a greater strategic role than ever. Thus, these events have added urgency to debates about precisely what this role should be. As precious as information may be in open warfare, it is even more basic to campaigns against terrorists, insurgents, and others who operate in secret. As of 2010, many of the most powerful states perceive such opponents to be among their most dangerous enemies.

Moreover, in the aftermath of Al Qaeda's 11 September 2001 strike on the United States, Americans learned that US agencies had uncovered clues that might have warned them about the coming attack, but that they had failed to appreciate their significance. Sixty years after Pearl Harbor, America's intelligence community was still struggling with the basic problem of processing raw data into 'enabling information'. The 11 September attack also forced strategists in America and elsewhere to confront – yet again – the comparative advantages of using intelligence services primarily as 'knowledge factories' and of using them more aggressively to infiltrate and perhaps subvert opposing organisations.

The most effective – and often the only – way to learn about terrorist plans is to plant informers among the terrorists. This involves similar techniques to planting double agents in opposing intelligence organisations. The risk of blowback is, perhaps, greater. Much of the time, the only way to recruit agents within a terrorist organisation is to rely on members who can be persuaded to betray their comrades, and this involves working with exceptionally unsavoury people, even by the low standards of the espionage profession. The fact that many terrorist groups test their members' loyalty by requiring them to carry out attacks further increases the moral and political difficulties of operating undercover agents within such organisations.

The political judgements involved in intelligence work against terrorists are also at least as profound as those involved in operations against opposing states. Terrorists commonly operate within the nations they plan to attack. This means that intelligence agencies must face the moral, legal and public opinion complexities of working in their home countries. Since terrorist movements often develop out of ethnic and spiritual conflicts, they confront intelligence strategists with questions of race and religion. The challenge of integrating intelligence into strategy remains alive, as does the challenge of integrating both into the political life of a free country.

Key points

1. National intelligence agencies only became commonplace in the late nineteenth century.
2. Clausewitz warned that intelligence reports can actually undermine a military commander's ability to implement strategy.
3. As war has grown more complex, strategists have become increasingly dependent on intelligence.

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4. Nevertheless, the process by which intelligence agencies provide strategists with useful information periodically fails in spectacular ways.
5. Theorists have tried to identify ways to make this process more efficient and reliable.
6. Meanwhile, intelligence agencies have proved to be effective instruments for coordinating campaigns to manipulate opponents.
7. Intelligence, like war itself, seems to be intertwined with politics at every level.

Questions

1. **Pick a currently important strategic issue. Which sources of intelligence are most likely to prove useful for understanding it?**
2. **Should intelligence agencies subvert opposing organisations in peacetime?**
3. **Should intelligence agencies employ analysts with radical political views?**

Further reading

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6 Grand strategy

Reader's guide: Grand strategy defined; grand strategy involves a wide range of factors; questionable validity of the concept; historical support for the concept; thinking about grand strategy effectively.

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Introduction

The art of strategy goes beyond the immediate problems of winning wars. Over the course of years, a wide range of social, economic and political factors help determine which political communities overcome their opponents and thrive. The same factors help determine which communities suffer setbacks and, occasionally, annihilation. Governments cannot fully control these factors, but they can often influence them, and logic suggests that political leaders who can integrate their policies on such issues in order to provide consistent support for their deepest goals are most likely to succeed. This art of coordinating policies over the long term, in peace as well as in war, is known as grand strategy.

This towers over all the strategic issues this book has discussed. One reason is that policy – whether this means state policy or the policies of some other type of organisation – determines the goals that strategists seek to achieve. Another is that practically all policies that governments and comparable organisations enact affect their strategic options in one way or another. Even policies on social issues – education, for instance, or health care provision – help determine what sort of recruits will be available for the armed forces, and what sort of support a government can expect from its population. Moreover, one may use policies of all types, including violence, to alter the policies of others. Therefore, if a state or other political organisation is to enjoy the benefits of sound strategic planning at any level for any length of time, its leaders must attempt to combine all their activities in ways that support their most fundamental aspirations.

Examples of these points abound in every chapter. Insurgents, for instance, defeat better armed state governments by undermining political support for the policies which allow those governments to use their armaments. Nuclear strategists attempt to integrate weapons of mass destruction into their foreign policies in such a way as to render war not merely unnecessary, but impossible. Intelligence agencies exist in order to help friendly strategic planners to integrate policies and armaments most effectively. Some might note that they are also capable of interfering with other planners' ability to do the same. Even in open combat between state armed forces, grand strategic decisions about

the integration of policies and armaments powerfully influence such basic matters as when war is to occur, where war is to occur, what the objectives of war are to be and what sort of equipment each side will have at its disposal.

In short, one must understand grand strategy in order to understand any kind of strategy at all. At this point, however, one encounters an obstacle. In the eyes of many scholars, grand strategy is a myth. Many theorists find the concept of grand strategy problematic in principle. Many who follow history and practical politics would note that it can seem impossible to integrate long-term policies in practice. This chapter acknowledges these difficulties but seeks, nevertheless, to set out a method for thinking about grand strategy usefully.

The first section of this chapter summarises the reasons why some question the existence of grand strategy. A second section notes that states and other political actors do, nevertheless, act purposefully at the grand strategic level. A third section explores some of the factors that underpin successful action in this arena and reflects on points to consider when interpreting them.

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The case against grand strategy

The founders of contemporary international relations theory sought, in the words of Hans Morgenthau and Kenneth Thompson, 'objective laws' governing politics.[1] Such laws cannot merely be detailed descriptions of what political actors have done in various situations – not only would such descriptions risk becoming too complicated to work with, they would not necessarily reveal anything about any issues other than the ones the authors had decided to describe. The fact that something happened in a certain way once is no guarantee that it will happen in the same way on any other occasion. Most international relations scholars are interested in understanding a wide range of events, some of which may still be in the process of unfolding and some of which lie in the future. Therefore, such scholars need general theories that explain what to expect in easily recognisable and commonly recurring types of situations. The simpler and more abstract these theories are, the more useful scholars find them.

Thinkers from the influential Realist School of thought, for instance, typically simplify international political issues by assuming that states are the only important actors in world politics, and the key to understanding what states will do lies in understanding that states are competing for power. Different realists have proposed different ideas about the ways in which states compete. Defensive realists such as Kenneth Waltz, for instance, suggest that some states are content with enough power to protect their own interests, whereas offensive realists such as John Mearsheimer suggest that all states aggressively seek as much power as possible. Neither defensive realists nor offensive realists involve themselves with the more complex political ideals that political leaders claim to pursue; they do not scrutinise those leaders' ideas about how to pursue them; they do not study the organisations those leaders work through; neither do they linger over details about the weapons, industry, transportation infrastructure and other physical media through which power is exercised.

Realism is highly compatible with the concept known as rational choice theory. This body of thought assumes that people and organisations normally try to make decisions

in ways that maximise their chances of achieving their goals. Many theorists would add that, even if this is not always true, rational decision makers will defeat and replace their fuzzy-minded competitors over time. Therefore, according to rational choice theory, it is possible to predict the decisions that others will make in virtually any situation. If one knows who the actors in a particular situation are, what their goals are, what their options are, and what each one expects the outcomes of choosing the various options to be, one will know which option that actor will select.

Realism tells who the actors in international politics are (states), what their goals are (power) and, with only a little more embellishment, what their options for gaining and holding on to power are likely to be. Therefore, it is easy to construct rational choice models to explain what states that behave according to some variant of realist principles will do. In other words, this combination of realism and rational choice theory seemingly allows one to predict the future. Other schools of thought within the international politics discipline have sharply challenged both realism and rational choice theory, but most of them tend to reduce world affairs to simple abstractions as well, for much the same reasons as the realists. Alexander Wendt's highly regarded *Social Theory of International Politics*, for instance, offers a particularly complete theoretical alternative to realism, but it also intentionally screens out such factors as individual leaders, their ideologies, their resources, and their plans.[2]

Those who practise strategy at any level sink these well-ordered theoretical models into swamps of detail. Theorists may prefer to gloss over peculiarities such as the capabilities of particular weapons systems and the terrain found in particular geographical locations, but combined arms operations of the sort that dominate land warfare take advantage of precisely these sorts of factors to win wars. The very existence of insurgents and terrorists reminds us that states are not the only actors in international politics. German leaders might have wished to make rational decisions in the later years of the Second World War, but the Allied intelligence services turned their very attempts to inform themselves about their options against them. A rational choice theorist who was unaware of the secret Allied deception operation would have been just as baffled as the German commanders.

As one rises from tactics and operations towards the grand strategic level of planning, the simplifications of formal international relations theory become increasingly difficult to justify. Grand strategy consists largely of integrating different activities to shape the circumstances of future political issues before they have come to the fore. Strategies of this nature may unfold over decades, if not centuries, and great numbers of them may be at various stages of completion at any given time, all affecting political issues through a wide variety of avenues in a wide variety of ways. The reason why the Allies were able to carry out their deception operation during the Second World War – to pick but one small example – is that years before the war, a committee within the British intelligence bureaucracy decided to recruit German spies as double agents, and that the Allies went on to coordinate this programme with initially unrelated operations such as their campaign to break Axis ciphers and their campaign to win air supremacy over western Europe. Few theories of international politics even discuss these types of activity, and no manageable theory could account for the mind-boggling variety of ways in which grand strategists might conceivably combine them.

For these reasons, academics from many of the most influential schools of thought

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deliberately ignore those parts of grand strategy that threaten their theories. Scholar Nicholas Kitchen documents this point in some detail, and notes other authors who explore the issue.[3] Most theorists would acknowledge that this practice makes their models less realistic, and most would add that it is precisely what allows them to develop general theories with meaningful levels of predictive power. Therefore, they would claim, the sacrifice in detail is worthwhile. Many theorists would add that, whatever grand strategies individual leaders may dream of following, most will find that they have little choice but to do what theory predicts that they must do.

Many veterans of military and political practice would agree. The idea that a state – or any other large political institution – can actually manage to coordinate all its activities over generations in order to carry out subtle and elaborate plans is naive. Researchers such as Graham Allison and Philip Zelikow remind us that the actual process of strategic planning in most real-life states involves continuous negotiation among a wide range of bureaucracies and other government institutions, none of which has complete authority over the full range of policies it is involved with, and none of which bears direct responsibility for the ultimate outcome.[4] This process is more likely to produce an endless series of momentarily workable compromises than a coherent plan to realise the highest purposes of the nation. As former British prime minister Harold Wilson observed, a week is a long time in politics, and as his predecessor Harold MacMillan noted, the main force shaping the policies of nations is not strategic cunning, but 'events, dear boy, events'.[5]

Of grasshoppers and ants

Nevertheless, governments – and other political organisations – have no choice but to act at the grand strategic level. They may do so haphazardly, they may do so under all manner of constraints, but they do do so nevertheless. Such a basic administrative procedure as drawing up a budget may have grand strategic consequences. Decades may pass between the time policymakers allocate funds to develop a new weapons system and the time when armed forces rely on that system in war.

The British government, for instance, identified a need for two new aircraft carriers in its Strategic Defence Review of 1998. Construction began in 2009. By 2010 British politicians continued to debate the wisdom of continuing funding for this programme, but if they do so, the carriers may enter service in 2016 and 2018. Once built, the carriers may serve for at least 30–50 years. In other words, British politicians in office today will knowingly make decisions that shape their country's options for integrating policies and armaments in the 2060s.

Throughout history, there have been leaders who have used such moments of grand strategic decision to advance relatively coherent long-term programmes. Others have taken the shorter view at their own peril. One can find a particularly vivid example of this process in the Warring States period of ancient China. During this era, China was divided into many feuding kingdoms. One of these kingdoms, the state of Ch'in (Qin), reformed its laws in order to maximise its military power and went on to conquer its neighbours one at a time, taking opportunities as they presented themselves over a period of approximately two centuries.

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In 247 BC, a 13-year-old prince named Cheng inherited Ch'in's throne. By that time, Ch'in had already extended its borders to both the north and east, annexed approximately half a dozen weaker states and reorganised the captured territory into provinces under its direct control. The young ruler had only to continue this programme in order to crush Ch'in's six remaining rivals and unite all of China into an empire. Over the following 20 years, Cheng – who has gone down in history as Shih Huang-ti (Shi Hunagdi), the First Sovereign Emperor – did exactly that. The last of Ch'in's opponents surrendered in 221 BC.

One can find further examples of effective long-term policy in seventeenth- and eighteenth-century Europe. Frederick William I of Prussia, for instance, devoted much of his life to reforming his country's armed forces. Nevertheless, his military endeavours often seemed more like a hobby than a foresighted strategy. For a soldier king, Frederick William waged surprisingly few wars. To this day, popular history presents him as a peculiar man with such odd traits as an obsession with organising a regiment of unusually tall soldiers.

Wikipedia features anecdotes about how Frederick William I painted the tall troopers' portraits from memory, claimed to love the oversized soldiers more than the most beautiful of women, and arranged marriages among his larger subjects in the hopes of breeding more giants.[6] Since Wikipedia gets its information from its users, one may presume that this is how a wide sample of contemporary history enthusiasts remembers the Prussian king. Wikipedia and its contributors fail to mention that Frederick William I may have had more practical reasons for his affectations.

Like many eighteenth-century rulers, the Prussian king wrote a political testament to help his successors continue his policies. Frederick William I's strategic will explains:

> Throughout my life, I have been careful not to draw down the envy of the house of Austria [a dangerous rival] on my head. This has forced me to pursue two passions which are really alien to me, namely unbounded avarice and an exaggerated regard for tall soldiers. Only under the disguise of these spectacular eccentricities was I allowed to gather a large treasury and assemble a powerful army. Now this money and these troops lie at the disposal of my successor, who requires no such mask.[7]

The second Frederick William, known as Frederick the Great, did indeed wield his father's army openly and with devastating effect. Approximately 200 years later, as the empire the two Fredericks began found itself facing the 'envy' of an enemy alliance that included such powerful nations as France, Britain and the United States, its leaders resorted to masks once more. German policymakers began secret preparations to rearm their country for a second world war before the ending of the first.[8] Adolf Hitler, like the 13-year-old king of Ch'in in a different millennium, inherited the work of generations of strategists.

Although Hitler was chillingly frank about his ambitions, he managed to continue Germany's rearmament programme throughout the 1930s, partially because many of his intended victims refused to acknowledge how systematically the German state was proceeding against them. As late as 1938, Britain's chancellor of the exchequer opposed deploying British troops to France on the grounds that Germany was extremely unlikely

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to violate Belgian neutrality, and that the French, protected by the Maginot Line, could presumably take care of themselves.[9] On 13 May 1940, with German forces already fighting in Belgium, the editors of an American newspaper still felt they could publish the line: 'It seems that the Germans are not interested in France at this time.'[10] Within days, German forces had driven deep into French territory. France surrendered the following month.

Ch'in, eighteenth-century Prussia and twentieth-century Germany were all subject to internal machinations and external 'events'. Prince Cheng inherited the throne in the midst of an intrigue involving the queen, a wealthy merchant and a virile serving man. Frederick William I may have left Prussia with an exceptionally well-organised army, but it was an act of fate – the unexpected death of the Austrian emperor in 1740 – that gave his son a suitable opportunity to use it. Twentieth-century Germany sustained its rearmament programme throughout coup attempts, street battles and the onset of the Great Depression.

This leaves one to ask how these states – and many others – have managed to pursue apparently coherent long-term policies despite all the 'events' that threatened to intervene. A variety of factors commonly shape war and politics at the grand strategic level. Those who pay attention to them improve their chances of recognising points at which they may act to achieve enduring results. An awareness of these factors may also improve one's chances of noticing the grand strategic acts of potential opponents while there is still time to respond.

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Box 6.1 **Strategic backfilling**

Those who criticise the concept of grand strategy note that the process by which states and other large political institutions make policy is inevitably plagued by contradictions. No single leader can personally manage all of a country's strategically relevant activities. Seldom will anyone involved in the process have the leisure to think comprehensively about the long-term implications of their decisions. Instead, a wide range of overworked people responsible for a wide range of different agencies must solve problems related to their own duties as they arise. Even when these officials are not deliberately competing with each other, they will have different views and take different approaches. Their policies will conflict.

Nevertheless, the fact that strategic policymaking is full of day-to-day incongruities need not guarantee that the ultimate results will be equally muddled. The researcher Deborah Stone notes that all political processes are permeated with contradiction. This includes both the processes by which governments choose policies and the processes by which they put them into effect. Stone proposes that we view this not as evidence of mismanagement, but, rather, as an essential feature of politics itself. The art of politics, Stone implies, consists of 'creat[ing] paradoxes and resolv[ing] them in a particular direction'.[11]

One of the paradoxical features of this art is that one can perform it backwards through time. Stone illustrates this with the following example from American

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domestic politics.[12] In 1987 President Ronald Reagan vetoed a spending proposal. The President and his supporters lobbied passionately to prevent the legislature from overriding the veto. Despite their efforts, both houses of Congress voted to reverse the President's decision.

If one judged this event by the standards of the President's initial speeches, Reagan had suffered a humiliating defeat. Nevertheless, after the veto was overridden, he and his supporters – successfully – recreated the event as a political step forward. Reagan, they maintained, had taken on a noble cause, despite knowing that the cause was doomed. Those who had opposed his courageous decision, they suggested, would now find it politically necessary to support the President on future issues.

Grand strategists may also be able to give policies coherence in hindsight. One can see a recent example of this in the People's Republic of China (PRC)'s space programme. In 2007, after the PRC successfully tested an anti-satellite missile, China scholars Bates Gill and Martin Kleiber wrote an article in the journal *Foreign Affairs* claiming that those who feared that China was pursuing a long-term strategy to increase its military capabilities had dangerously misunderstood the incident.[13] The two scholars quoted American Vice-President Richard Cheney, who had noted that China's missile test was 'not consistent with China's stated goal of a peaceful rise'.[14] Gill and Kleiber explained this inconsistency by suggesting that the various branches of the Chinese government, including those responsible for such major acts of policy as the decision to test a provocative new weapons system, had become 'rogues' acting in a reckless and uncoordinated fashion.[15] The real danger, Gill and Kleiber warned, was not that the Beijing government had an insidious plan, but that the Beijing government had lost control.

Although Gill and Kleiber did not mention it, there were other apparent paradoxes in China's space policy of the early twenty-first century. During this period, China was cooperating with the European Union on the project to develop the Galileo satellite navigation system. This system is to perform the same functions as the American global positioning system, and although the European Union maintains that Galileo will be purely for peaceful purposes, the fact that a Sino-European coalition was constructing an alternative to one of America's most valuable strategic assets suggested a shift in the balance of power, with political implications for all concerned.

Meanwhile, the PRC also invested in developing a separate satellite navigation system of its own, known as Beidou. Space programmes are not cheap, and developing two different satellite networks to perform the same function would appear to be a poor use of resources. Only Chinese policymakers truly know why the PRC engaged in this apparently wasteful policy. One may easily infer that well-connected officials responsible for collaborating with the EU on Galileo fought to continue their project, that equally well-connected officials responsible for Beido*u* fought to continue their project, and the central authorities found it impossible to cancel either programme.

Beijing's European partners, however, turned out to have inconsistencies of their own. When the Galileo consortium ran short of money, its members restructured their organisation. This restructuring reduced the PRC's influence over Galileo. Moreover, by 2010 Galileo had yet to become operational.

Beidou has been functioning in various forms for approximately a decade. Whatever factors originally led the PRC to pursue both satellite navigation systems at once, the decision has turned out to be sound. Moreover, Beidou broadcasts on some of the same frequencies as Galileo. This means that were Galileo to become operational, it will be difficult for anyone to use it for military purposes unless China agrees. By pursuing initially inconsistent policies, the PRC has gained a working navigation system, independence from its fickle European partners, and some ability to control those partners if Galileo ever becomes a reality.

[The author has researched the PRC's involvement in the Galileo project jointly with Dr Xiudian Dai, and gratefully acknowledges Dr Dai's contribution to his arguments.]

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Continuity, change and strategic options

Perhaps the most widely recognised factor influencing grand strategy is geography. Such influential strategic thinkers as A. T. Mahan, Halford Mackinder and Nicholas Spykman have paid special attention to its role. These thinkers' works have helped to establish a school of thought in foreign policy analysis devoted to its study, known as geopolitics. The logic behind the geopolitical approach to grand strategy is compelling. Geography, after all, affects one's access to resources, one's exposure to potential enemies, one's ability to cooperate with potential allies and the sorts of climatic conditions one will operate under, not to mention many other factors which may be more or less important at various times.

The fact that most of strategy involves material things means that it matters where those things are. Since cities, rivers, oceans, mountain ranges and other strategically important parts of the landscape tend to remain in roughly the same places, the geopolitical approach is particularly useful for analysing long-term strategic issues. One of the reasons why Ch'in was able to invade one neighbour after another for 200 years was that conveniently placed mountain ranges helped protect it from those who might have wished to put an end to its conquests, and one of the reasons why Frederick William I had to disguise his intentions was that Prussia lacked such defences.

Strategists would find it convenient if theorists could come up with universal rules explaining how to take advantage of geography to achieve political goals but, so far, no such principles have emerged. The Austrian empire of the eighteenth century was Prussia's antagonist, whereas the weaker Austria of the twentieth century became an appendage of Hitler's Third Reich. Geography ensured that Austria would be critical to German strategy in both periods, but over the course of centuries, the role of the Austrian state practically reversed itself. Important as geography is, one must look at other factors as well.

As society, technology, economics and political relationships change, the significance of geographical features changes along with them. Accordingly, the British strategic thinker B. H. Liddell-Hart identified 'financial pressure', 'diplomatic pressure' and 'ethical pressure' as key 'instruments' of grand strategy.[16] Hart emphasised that a grand strategist must pay attention to the long-term implications of using these instruments 'to avoid damage to the future state of peace'.[17] Decades later, the widely respected historian Paul Kennedy adapted Hart's list as the basis for his own writings on the subject.[18]

Kennedy's expanded definition of grand strategy drew attention to '[t]he critical importance of husbanding and managing national resources' along with '[t]he issue of national morale and political culture, which is of importance not only on the battlefield but also in a population's willingness to support the purposes and the burdens of the war – or the cost of large defense forces in peacetime'.[19] Other writers on the subject have emphasised a range of other issues. In 2010, for instance, the international relations theorist Nicholas Kitchen pointed out that our ideas about strategy are part of the very strategies we use them to explain.[20] If we think Hart was right, we will tend to behave the way we think Hart would have advised us to behave.

To understand how any one of these factors affects any particular actor's grand strategic capabilities at any particular time, one must examine it in the context of as many others as possible. One must look for patterns, systems and relationships. Above all, one must look for ways in which strategic actors may take advantage of these convergences of circumstance. One must also look for ways in which strategic actors may promote the very developments they may later wish to exploit.

Here, one might also note that grand strategy overlaps with the most fundamental questions of politics. If, for instance, managing resources and national morale is important, the organisation of the institutions that manage them must be equally important. Thus, the founders of the United States of America explicitly designed the US Constitution to 'ensure domestic tranquillity' and 'provide for the common defence'. A constitution is, in large part, a blueprint for long-term strategy, and writing one is among the most significant grand strategic activities that political leaders can undertake.

This point about constitutions also applies to international agreements. A treaty is also a grand strategic document, and its terms may shape the way in which its signatories wage war. The same is true of decisions in international institutions and court cases which establish precedents in international law. The fact that some may flout such restrictions does not change the fact that most states attempt to conform to most international laws most of the time, neither does it change the fact that even the most powerful actors may find that a reputation as a so-called rogue state itself limits their future options.

Moreover, if Kitchen is right and ideas matter, then the substance of those ideas must also matter. There may, for instance, be a fundamental difference between making grand strategy for a liberal democracy and making grand strategy for an authoritarian regime. What works well for one type of government may not work as well for another. In many cases, this may simply mean that different regimes must adopt different approaches. Nevertheless, this also raises the possibility that some political systems

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may be inherently more capable than others. We must hope that the most benign forms of government and the most powerful forms of government ultimately prove to be the same.

Conclusion: a grand strategic compass

The challenges of understanding – and making – grand strategy are fundamentally similar to the challenges of working with strategy at any level. Macmillan's events and Allison's organisational politics are, after all, no more than manifestations of what Clausewitz called friction. Deception is a universal tool in strategy, and self-deception is a universal risk. The reason why grand strategy seems unusually elusive in both theory and practice rests in the fact that it seldom appears purely as itself. Most of the time, it lies beneath the surface of all the other things that states and people do.

As the first paragraph of this chapter noted, policies on education may have long-term military implications. Nevertheless, when political leaders consider this issue, training future soldiers is seldom the first thing on their mind. Moreover, it seems unlikely that the citizens of their countries would be better educated if it was. A later paragraph described a constitution as a blueprint for grand strategy – but only in a certain type of state would a constitution be only a blueprint for grand strategy. The word for that type of state is totalitarian.

To think about grand strategy effectively, one must learn to find points at which the strategic significance of various policies has risen closer to the surface – or could be made to do so. This chapter has suggested that one may look for these points by looking for patterns among the various factors that most commonly influence political destiny. The section in which we discussed these factors concluded with an examination of political ideas. Those with an interest in grand strategy have at least two reasons for paying particular attention to this topic.

The first is the one emphasised in the earlier section. Looking for strategically important ideas is often a useful way of recognising the patterns that this chapter has been discussing. The fact that one's own country is adjacent to another state does not constitute a pattern, and even the fact that the neighbouring state happens to have a powerful military remains open to multiple different interpretations. Knowing the additional fact that one's powerful neighbour is ruled by fanatics bent on territorial expansion clarifies the situation in a way that few other pieces of information could have done.

The second reason is that political ideas not only serve as landmarks, they serve as a compass. To make strategy effectively at any level, one needs to know what one is trying to accomplish. Thus, according to British military doctrine, the first principle of war is selection and maintenance of the aim. This is particularly true at the grand strategic level, where leaders must routinely ask themselves whether to choose policies which maximise short- to medium-term military capabilities, or whether some other issue should take priority. To make such decisions effectively in an environment where grand strategy will seldom be more than one consideration among many, one must cultivate an acute understanding of what is worth fighting for.

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Key points

1. Grand strategy combines military activities with other forms of policy in order to maximise a community's chances for success in war and other undertakings.
2. Scholars have questioned whether states and other political actors ever actually integrate their policies in this fashion.
3. The policymaking process is certainly more complex than a superficial understanding of grand strategy might make it seem.
4. Nevertheless, political leaders have no choice but to act at the grand strategic level – and some do so more effectively than others.
5. A variety of factors commonly shape international politics over the long term.
6. By looking for patterns among these factors, one may discern points at which political leaders may practise grand strategy successfully.

Questions

1. **Is a democratic system of government a grand strategic asset or a grand strategic handicap?**
2. **Are certain geographical regions uniquely important to achieving political power?**
3. **What factors are most important in grand strategic planning?**

Further reading

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Part 2

The geographic dimensions

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7 Land power

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Reader's guide: Ground troops determine which side in a war will be capable of controlling people and places; modern weapons make it problematic for ground troops to survive; the tactical solutions that emerged during the First World War; the operational solutions that emerged since; the question of whether these solutions will remain valid under twenty-first-century conditions.

Introduction

> The ultimate determinant in war is the man on the scene with the gun. This man is the final power in war. He is control.
>
> Admiral J.C. Wylie[1]

There are exceptions to Wylie's point, but not many. Military history includes occasional examples of armed forces that managed to exert control in specific situations with minimal numbers of ground troops. During the 1920s, for instance, numerically small British colonial forces managed to suppress revolts in what was then known as Mesopotamia by bombing rebellious villages from the air. Even in that campaign, however, the British had to combine air attacks with ground operations in order to achieve lasting success.

Far more common is the situation that developed approximately 80 years later in the same part of the world. In 2003 a US-led Coalition invaded Mesopotamia – by then known as Iraq – using the most advanced military technology then in existence. Although the Coalition overran Iraq in a matter of days, its forces became bogged down in years of costly and inconclusive fighting, largely because the original invasion force had not included enough ground troops to impose order in the conquered territory. As of the twenty-first century, no amount of fire power and no form of new technology can substitute for Wylie's man on the scene.

In order to place ground troops 'on the scene' one must get them there alive. One must also keep them alive after they have arrived. These obvious points raise some of the most complex problems in contemporary military operations. A direct frontal attack against enemies equipped with modern firearms is suicidal. Attempting to hold a position that comes under fire from contemporary weapons is also problematic, although, amazingly, it has remained possible. These tactical realities have implications for every level of military planning. Whenever military operations involve the possibility of

ground combat, strategists must provide troops with means and opportunities to work around these difficulties.

The problem of overcoming modern weapons in a single firefight would be challenging enough by itself. To win a battle or a war, it is only a first step. In order to achieve anything of lasting importance, higher level commanders must enable their forces to win many such firefights, and to go on doing so. Moreover, higher level commanders must coordinate these firefights in such a way as to develop small victories into larger ones. This is true for a captain who must decide how to manoeuvre three or four platoons in an attack on an enemy pillbox, and it is equally true for the president of a country, who must make decisions about the type of military forces to invest in and the circumstances under which to commit those forces to war.

Military thinkers developed techniques to cope with the lethality of modern weapons over the course of the First World War. Germany demonstrated what armed forces can accomplish when they apply these techniques in a coordinated manner when it overran Poland and France in the Second World War. Germany's enemies, notably the Soviet Union, developed those methods of coordination yet further as they recovered from the initial German onslaught and went on to dismember the Third Reich. Despite all that has happened since, the tactical methods that evolved during the First World War and the operational methods that evolved during the Second World War remain the foundation stones of land warfare.

Thus, returning to Wylie's point about the 'man on the scene', these methods remain basic to all military planning. This chapter explains the techniques of modern land warfare as follows. An initial section details the problems soldiers faced as modern weapons and modern industry became widespread. This section focuses on the example of the First World War. A second section discusses the solutions that commanders in that conflict developed. The third section discusses the way in which military thinkers of the 1920s, 1930s and 1940s integrated new weapons and new tactics into higher levels of planning. A final section asks whether methods that emerged during the world wars of the twentieth century remain appropriate in the wars of the twenty-first. Later chapters will return to this question in more detail.

Facing fire power

When Germany invaded Belgium and France in August 1914, commanders on both sides hoped to crush their opponents by aggressively taking the offensive. The Germans, in particular, believed that they needed a quick victory for strategic reasons. German commanders hoped to overcome France in time to shift their forces eastward to meet an expected attack from Russia. Certain German strategists had also written about the danger that a long war under modern conditions would bankrupt the countries that fought in it, possibly undermining their governments and reducing their societies to anarchy. Moreover, military thinkers on both sides commonly assumed whichever side attacked more energetically that side would enjoy a tactical advantage over the one that found itself forced onto the defensive.

This assumption appears logical. Attacking commanders have the luxury of deciding when and where to stage their assault. This gives them greater freedom to fight on their

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preferred terrain. This also allows them to concentrate their own forces against positions in which they believe the enemy to be weak. French military thinkers, in particular, would have added that attacking troops gain a psychological advantage simply from knowing that they are gloriously charging forward. Moreover, attackers have the more general advantage of taking positive action to achieve new things, whereas defenders can only hope that they will eventually exhaust their opponents by holding on to things they already possess.

Despite the apparent logic in favour of aggressive action, this 'cult of the offensive' proved catastrophic in practice. When Germany attacked, France promptly launched a counteroffensive known as the Battle of the Frontiers. In the 10 days between 15 August and 25 August 1914, the French lost over 300,000 men in futile attacks on German defensive positions. This amounted to almost one-quarter of their strength. French forces in this battle suffered a higher rate of casualties than any other army in any other major operation throughout the First World War.

Meanwhile, the German forces attacking through the Low Countries advanced almost to Paris before the French and British Allies drove them back. As the German army recovered from the initial battles, its troops halted their retreat and entrenched themselves to resist further French and British attacks. At this point, the Germans still controlled over one-tenth of France, including practically all of France's coal and iron resources. Since the Allies could not overrun the German positions in a frontal attack, they dug trenches of their own, and since the industrial economies of early twentieth-century nations allowed both sides to field armies of millions of men, both were able to extend their defensive lines from the Swiss border to the North Sea. This created a situation in which neither side had any obvious way to advance other than to stage direct attacks of the sort that had proved so bloody and difficult in the Frontiers.

If commanders on either side hoped to proceed beyond stalemate, they had to find a more effective way to attack. A variety of factors combined to make this difficult. The first was simply that defenders have always enjoyed certain tactical advantages, and probably always will. Defenders have greater opportunity to take advantage of natural cover, and to improve it with fortifications such as trenches. This gives them some protection from the attackers' weapons. Attackers, by contrast, must leave whatever cover they have found and advance towards the enemy, taking fire the whole time.

Over the course of the nineteenth century, firearms technology improved dramatically. The most highly trained troops of Napoleon's time would have done well to fire two shots a minute with their muzzle-loading muskets. The troops of the British Expeditionary Force (BEF) managed to deliver 10 times that rate of fire in 1914 with their considerably more accurate rifles.[2] Although the BEF's performance was exceptional, it illustrates what the improved shoulder arms could do. Even less accomplished troops could easily fire five rounds per minute with First World War-era rifles.[3] These developments made advancing against enemy defensive positions bloodier and more difficult than ever before.

Furthermore, the armies of the First World War fielded entirely new types of weapon. Any one of these weapons would have been formidable on its own. Moreover, their capabilities complemented one another, so that they were even more effective in combination than they would have been separately. The best known of these weapons is the

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machine gun. A single well-placed machine gun could halt hundreds of enemy troops.

But machine guns, of course, had limitations. These weapons are notoriously difficult to move. Heavier models also require support from crews of up to 10 men. These factors were particularly important early in the war, before armies introduced lighter and more mobile machine guns. Moreover, although a single machine gun can fire as many bullets as 20 or 30 riflemen, it also presents a more compact target. When one disables a machine gun position, one instantly neutralises all its fire power. Overcoming 30 individual soldiers will normally be a slower and less certain process.

The most deadly new weapon of the early twentieth century was modern artillery. Artillery caused approximately 60 per cent of the casualties in the First World War. Just as small arms had grown more accurate and longer ranged, artillery had as well. Meanwhile, gunners worked out techniques to fire shells at a high angle, so that they would rise, pass over whatever obstacles might happen to be in their path and descend on a target that might happen to be over 10 miles away.

This technique, known as indirect fire, allows commanders to position artillery behind their other forces' positions, keeping the guns relatively – although not completely – safe from enemy action. Indirect fire also allows artillery to strike behind such obstacles as trees, hills and both sides' troops. By making the enemy more vulnerable in more places, indirect fire artillery gives commanders a greater range of tactical options. If, for instance, enemy troops take cover from direct fire weapons by hiding behind trees, hills or other terrain features, one may use artillery to keep them under fire. If they abandon their cover to escape the shells, they expose themselves to direct fire weapons again. When commanders succeed at positioning their various types of weapon so that one can hit the targets the other cannot, they leave their enemies with no place to hide.

Indirect fire also allows artillery to strike behind enemy lines, without going through the intermediary step of defeating the opposing troops in the middle. This makes it possible for artillery to attack such targets as enemy headquarters, enemy supply depots and the enemy's own artillery. Roads, bridges, and other components of the enemy transportation network are equally vulnerable, as are wires for field telephones and other line-based communications systems. Thus, modern artillery using indirect fire can have the potential to cripple opposing forces before they ever reach the so-called front-line.

As is ever the case in war, numerous factors complicate indirect artillery fire in practice. Historically, one of the most important complicating factors has been one of the most obvious – gunners using indirect fire cannot see what to aim at, neither can they see whether they are actually hitting it. Speaking broadly, gunners have two options for targeting indirect fire. First, they can drop shells on preplanned locations at predetermined times or in response to prearranged signals. This system is often referred to as 'map fire'. Second, they can rely on friendly troops to inform them about the location of valuable targets and provide them with feedback about where their shells are falling.

For the second method to work, the gunners and the troops directing their fire need a fast, reliable method of communicating. The second method also requires high levels of skill and teamwork. Troops directing the fire (often known as forward observers, or FOs) must have some confidence that the gunners will not hit them instead of the target.

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Moreover, FOs, gunners and their commanders must generally agree on which targets to attack. There will normally be far more places in which friendly troops need artillery support than there are guns to provide it, so those responsible for artillery operations need to be able to prioritise.

In 1914 the technology of aiming indirect fire from defensive positions had reached a higher stage of maturity than the technology for aiming indirect fire on the attack. Although gunners had developed basic techniques for working with forward observers, their methods remained crude. Moreover, wireless communications systems were also in their infancy. This meant that FOs had to rely on field telephones, and troops on the defensive typically have more opportunities to connect their positions with telephone lines than troops pressing forward under fire. In battle, both sides tended to lose their telephone lines to enemy artillery fairly quickly, but defenders, once again, had a greater opportunity to protect their lines by burying them.

For these reasons, the artillery of 1914 relied heavily on map fire. Again, this favoured the defender, since it is easier for defenders to identify the routes their enemies will have to take in order to approach their lines than it is for attackers to pinpoint the spots at which distant opponents have taken positions. The fact that both sides had settled into immobile trenches made it somewhat easier for attackers to figure out where the defending troops would be. Nevertheless, commanders who attempted to hammer opposing trench lines into submission with prolonged artillery bombardments seldom achieved the results they might have hoped for.

Troops under cover can and do survive even the heaviest shelling. Moreover, a well-prepared defensive position consisted of as many as seven trenches, one behind the other. Attackers that overcame the front trench – which their artillery would find easiest to target – would merely have to deal with the next. A well-prepared position also included communications trenches linking the lines of defence. This allowed defenders from the rear trenches to advance under cover as they moved to counterattack. Attackers attempting to continue their advance enjoyed no such luxury. To compound the problems of using massive bombardment as an offensive tactic yet further, prolonged artillery fire warned defending forces both that an attack was imminent and where it was likely to fall. This permitted defenders to withdraw forces from the most exposed positions, bring in reinforcements, and take other steps to prepare a devastating response.

Yet another new defensive weapon of the early twentieth century was barbed wire. When one thinks of wire obstacles in the First World War, one should not picture the vertical fences common on farms. Armed forces in defensive positions string broad nets of wire at ankle height, making it virtually impossible for troops on foot to pick their way forward. If enemy infantry wishes to advance, it must endure enemy fire while painstakingly cutting its way through the barbed wire nets, one strand at a time. The fact that fire from so many different types of weapon had grown so much more effective magnified the importance of such obstacles in the First World War.

Artillery could clear wire obstacles by blasting them to shreds. Shellfire, however, pounded the ground into a moonscape of rubble and craters, which also slowed down attackers as they attempted to advance towards the enemy's guns. This problem became all the worse as rain turned shell craters into lakes where wounded or merely over-

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burdened foot soldiers might slip in and drown. Thus, even where the fire power of early twentieth-century weapons seemed to help the attacker, it proved a mixed blessing.

Little things count

Defending armies, equipped with modern small arms and artillery, occupying multiple layers of fortified and mutually supporting positions, backed by reserve forces and sustained by the human and material resources of economically developed modern states proved impossible to overcome, at least in the period from 1914 to 1917. Nevertheless, the factors that favour the defender in modern ground combat are only invincible in combination. Defenders never enjoy all of these factors fully at all points and at all times. Moreover, attackers can often find ways to complicate their enemies' efforts to coordinate the various elements of an effective defence. Therefore, even in the trenches of the First World War, there were always times and places at which commanders could manufacture opportunities to attack.

Here and there throughout the combat zone, attacking troops may simply get lucky. They may find themselves opposing troops who are exhausted or short of ammunition. Their enemies may have positioned themselves poorly, perhaps because of incompetence or perhaps because they have been too busy fighting to prepare defences. The defenders may not have enough artillery within range to support front-line soldiers with indirect fire.

The longer armies engage in combat and the larger the areas they happen to be fighting over, the more frequently both sides will encounter fortunate – and unfortunate – flukes of circumstance. These flukes will help the defenders as often as they help the attackers. Neither side can expect to succeed by relying on luck. Nevertheless, troops that watch for opportunities may occasionally find it possible to do things that they would not normally be able to do.

Attackers may also be able to take advantage of the terrain. Even with modern weapons, troops find it difficult to hit targets that they cannot see. Although artillery can shoot over obstacles, the gunners need to know when to fire and where to direct their rounds. Moreover, unless artillery receives prompt, accurate feedback about where its shells are landing, it will have to expend prodigious amounts of ammunition in order to have any reasonable chance of destroying its targets.

Defenders naturally try to take positions in which they will have a clear view of – and clear shot at – approaching enemies. If the defenders have time, they will cut down trees, demolish buildings, and take other measures to improve their fields of fire. Nevertheless, even in deserts and apparently flat fields, there are practically always places in which attackers can find cover. During the 1970s, for instance, western military analysts estimated that troops holding typical defensive positions on the appropriately named North German Plain would only be able to see 35 per cent of the ground within 1000 metres in front of them.[4] Barely perceptible folds in the earth can shield troops that lie low and keep the ridgelines between themselves and their enemies. Although troops may have to cross open ground to reach this cover, they may be able to take advantage of fog, smoke, darkness or other conditions to do so.

Moreover, although it is difficult for attackers to annihilate enemy defensive

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positions purely through long-range bombardment, artillery – along with all other types of weapon – can still prevent one's opponents from performing at full effectiveness. Troops cannot fight as well while they are under fire. Unless they are exceptionally well protected or exceptionally lucky, they will suffer casualties, and although many of them may survive, the losses will disrupt their activities and weaken them at particular points. Moreover, unless they are recklessly brave – and willing to take even heavier losses – they will have to crouch behind cover, withdraw from positions that have come under effective fire and take other measures to protect themselves. The more troops must concentrate on saving their own lives, the less they will be able to concentrate on killing their oncoming enemies. Even those that manage to return fire will find that smoke, noise and flying debris make it harder than ever for them to hit their targets – or to perform any other functions.

As the First World War went on, commanders on both sides became increasingly aware of the importance of finding weak points in enemy lines, of the use of cover to help troops survive long enough to attack those points, and of the value of fire power as a tool for disrupting enemy performance. This awareness helped First World War commanders develop a range of techniques for overcoming the combination of developments that had so often made defensive trenches so impregnable. For instance, the opposing forces of 1914–18 introduced methods for using indirect fire that took full advantage of what artillery could actually accomplish, as opposed to what it seemed capable of accomplishing in principle. Instead of bombarding enemy positions for days before an offensive, cratering the ground and sacrificing the chance of surprise in hopes of blasting the enemy into oblivion, commanders learned to use artillery in sudden barrages at the moment their troops attacked.

Artillery crews developed techniques to drop rounds just ahead of their own side's infantry, and to move the line of falling shells forward as the friendly infantry advanced, so that the enemy would have to deal with both the bombardment and the oncoming foot soldiers at the same time. (This type of artillery fire was known as a 'creeping barrage'.) Both sides also improved their methods of locating enemy artillery and using their own artillery to fire back at it. (This practice is known as counterbattery fire.) Most important of all, armed forces developed relatively reliable methods for using forward observers to bring artillery to bear against specific targets, making indirect fire a much more efficient tool for attackers and defenders alike.

Meanwhile, commanders learned to move their troops across the battlefield in ways that paid greater respect to the capabilities of modern weapons. Even as military thinkers came to accept that large-scale attacks by large numbers of soldiers had become little more than a form of mass suicide, they became increasingly aware of the fact that smaller teams of soldiers attacking the enemy's weak points could still succeed. Such local attacks could not overrun the enemy's defensive lines, but they could penetrate them in isolated places. The attackers could then send more troops to 'mop up' the stronger points in the enemy's lines while the troops that had successfully 'infiltrated' either assisted by turning to strike the enemy strong points from behind or continued to advance even deeper into the enemy's position.

Even where defending forces are weak enough to attack, they practically always remain capable of inflicting horrendous casualties. Although writers on strategy often

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contrast infiltration tactics with the bloodier and presumably less imaginative system of large-scale assault, both depend on sending groups of soldiers towards enemy guns. Therefore, early methods of infiltration required soldiers to attack in a series of waves, so that there would be more troops to continue advancing after the ones in front had been killed.

As noted previously, troops cannot perform as effectively while they are under fire. Therefore, if one group of attackers can fire at the enemy, soldiers in other groups have a better chance of surviving as they advance. At some point, the two groups can exchange roles, with the soldiers who had been advancing pausing to shoot at the enemy while the troops who had been firing move forward. Thus, the two groups can 'leapfrog' each other, going deeper and deeper into the enemy position. Military thinkers often refer to this as moving in 'bounds'. These principles of combining fire with movement have become basic to most methods of moving troops from point to point in combat.

When armed forces first adopted these methods as routine practice, commanders intended to use them with relatively large units in a relatively simple way. In February 1917, for instance, the British army issued a manual known as SS 143, *Instructions for the Training of Platoons for Offensive Action*.[5] This manual advised platoons (units of approximately 60 men) to divide themselves into sections devoted to manoeuvre and sections devoted to providing fire power.[6] When the platoons came under effective fire, the fire power elements were to pause and shoot back while the manoeuvre elements attempted to move forward and attack the enemy at close range, preferably from a flank. Nevertheless, the manual seemed to envisage large numbers of platoons performing this procedure more or less mechanically as they all advanced steadily forward with their troops spread out in lines facing the enemy.

Experienced soldiers immediately recognised that the process was likely to be far more complicated in practice. Different units inevitably found themselves dealing with different terrain, different levels of visibility, differently positioned opponents, and many other differences in fortune as well. Moreover, since gathering large numbers of troops or other military assets in one place presents the enemy with a lucrative target for area effect weapons such as artillery, these small units must disperse and conceal themselves as well as they can. By the time of the Second World War, this process of spreading out and hiding had continued to the point at which soldiers often found themselves seemingly alone in an apparently deserted landscape, despite the fact that they were in the middle of operations involving combat between tens of thousands of men.

Even in 1916–17, platoon commanders found it most practical to, as one British army pamphlet put it, 'dribble' troops forward in 'blobs' of whatever size could best cope with the situation they found themselves in.[7] Individual 'blobs' could end up fighting miniature battles of their own. Later British regulations formally established the 'blobs' as sections of one non-commissioned officer (NCO) and six men.[8] Meanwhile, German forces learned to base attacks on similar tactics involving so-called storm wedges of an NCO and nine troops.[9]

If small units were to fight their own isolated battles, they needed weapons that would allow them to apply the principles of fire and movement as independently as possible in as wide a range of situations as possible. Wherever possible, such units

needed to be able to carry these weapons with them, rather than relying on their comrades elsewhere for support. Therefore, as the First World War went on, armed forces introduced a continually expanding range of specialist weapons designed for small unit combat, distributed them in continually increasing numbers and entrusted them to troops at ever lower levels of the chain of command.

In 1914, for instance, the British army issued its troops two heavy machine guns per battalion (a battalion consists of approximately 500–1,000 men). The battalion commander – typically a lieutenant colonel – was responsible for deciding where to position them to support the entire unit's operations.[10] Certain military thinkers advocated creating independent machine gun units, to place the valuable weapons even more firmly under central control. The opposite approach, however, turned out to be the effective one – by 1916 the British army had begun distributing lighter Lewis guns to individual platoons, and this proved so critical to small unit tactics that General Sir Ivor Maxse subsequently declared '[a] platoon without a Lewis gun is not a platoon at all'![11] The German army took this process to its natural conclusion by equipping selected troops with the submachine gun, an automatic weapon small enough for an individual soldier to handle virtually as easily as he might handle a rifle.

Other new weapons included trench mortars, which allowed infantry brigades (units of a few thousand men) to support local battles with indirect fire without going through the uncertain and time-consuming process of requesting support from distant artillery. Rifle-fired grenades gave each platoon a limited indirect fire capability of its own. Meanwhile, the opposing armies introduced improved models of the hand grenade. This made it possible for every soldier to carry a few short-ranged indirect fire munitions on his belt. The fact that grenades are also area effect weapons made them useful for clearing numbers of enemies out of confined areas such as trenches, and the flamethrower offered an even more lethal tool for dealing with multiple opponents at close range.

Meanwhile, the opposing armies developed more spectacular new forms of technology, such as tanks, armed aircraft and poison gas. As Box 7.1 notes, these innovations seldom achieved lasting results on their own. To make these inventions consistently useful, commanders had to use them in combination with other weapons to support the process by which smaller units exploited local opportunities to win local victories. The development of the tank provides a particularly instructive case study of this point.

The British introduced tanks at the Battle of Flers on 15 September 1916. Although the experiment excited journalists and optimistic British officers, the tanks performed indifferently on the battlefield. Subsequent tank attacks were debacles. At one engagement the following April, the tank forces arrived a day late for the battle and suffered 100 per cent casualties.[12] At another battle, a force of 190 tanks sank into deep mud, while the survivors found themselves forced to advance ineffectually in single file along the few available roads. Only at the Battle of Cambrai in November 1917 did tanks finally accomplish anything meaningful.

At Cambrai, tanks led an infantry advance over two miles into the German defences. One of the main reasons why the tanks achieved this result was that Cambrai happened to be one of the places at which British forces enjoyed a local advantage. Only a weak German force of two divisions opposed them there, and those two divisions had only 34 artillery pieces.[13] Moreover, British artillery managed to neutralise the enemy guns

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promptly, depriving the Germans of their most effective weapon for stopping the tanks.

When the tanks advanced at Cambrai, they helped other parts of the British army to function more effectively. The tanks, for instance, flattened German barbed wire defences. Not only did this make it easier for the British infantry to advance, it freed the British artillery – which would normally have had to destroy the wire with shells – to concentrate its fire on other targets. Just as the power of modern defences depends on a variety of weapons that complement one anothers' effects, tactics for overcoming such defences must also involve mutually supporting combinations of arms. Although tanks have become considerably more reliable over subsequent decades, this principle remains valid today.

Moreover, tanks themselves must often use the same fire and movement procedures as infantry to advance against enemy defences. Just as tanks proved most consistently effective when integrated into the tactical system that emerged in the middle years of the First World War, so have all the other new weapons and new techniques that have become available for ground combat in later decades, from helicopter gunships to rocket-propelled grenades. Many of these innovations are capable of inflicting brutal losses on unprepared opponents, but none has altered the basic logic of the modern battlefield, which is that it is fatal to expose oneself to effective fire, and that those who wish to engage their opponents successfully must go through a torturous process of contriving circumstances in which their enemies' fire will not be effective at opportune points. New weapons have offered troops new options for creating favourable circumstances, while simultaneously forcing them to take new countermeasures against the opposing forces' capabilities. One notes that the process of working out how best to coordinate the continually expanding array of weapons and other military assets available in modern ground operations has become mind boggling.

Box 7.1 **Stone, paper, scissors**

In the game 'Stone, paper, scissors', two players extend their fists. Then, at the same moment, they gesture to indicate whether they have chosen to be 'stone', 'paper' or 'scissors'. A player who chooses 'scissors' beats a player who has chosen 'paper', because scissors can cut paper. If, however, one chooses 'scissors' and one's opponent chooses 'stone', one's opponent wins, because a stone can blunt scissors. A player can defeat 'stone', however, by choosing 'paper', because paper can cover a stone.

The art of combining different types of force to maximise their combat power resembles this game. Each type of weapon and weapons system has distinct advantages and disadvantages. One tries to deploy them so that they can compensate for each other's drawbacks while confronting enemies with the specific types of weapons that they will find most difficult to deal with. For those unfamiliar with the forces that take part in modern land warfare, the following provides an introduction.

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Infantry

Advantages: can operate in practically all forms of terrain, can disperse to take advantage of cover, cheap to field and deploy in large numbers, relatively easy to conceal, relatively high ability to discriminate between enemies and bystanders, relatively high ability to interact with human beings, can use portable missiles and other specialist weapons to inflict casualties on high-value targets such as tanks and aircraft. Can also assist aircraft and indirect fire weapons in finding targets.

Although individual soldiers are vulnerable, infantry units dispersed in protective terrain can often withstand heavy bombardment while remaining effective in combat – if the troops have sufficient morale.

Disadvantages: slow, vulnerable when exposed to enemy fire, most weapons have relatively short ranges and relatively little fire power.

One can move infantry from place to place faster by providing troops with motor transport. Normally, however, infantry will have to dismount in order to use its special combat advantages. Infantry mounted in trucks are highly vulnerable, with no compensating advantages except for their ability to travel more quickly on passable terrain. Infantry mounted in infantry-fighting vehicles (or, perhaps, in the armed civilian lorries known as 'technicals') can duplicate the combat functions of light armour. Main battle tanks, however, outmatch infantry fighting vehicles in both protection and fire power.

Tanks

Advantages: fast, armour protection, substantial fire power in direct fire role. 'The best defence against a tank is another tank.'

Disadvantages: limited mobility in rough terrain, poor visibility, substantial maintenance requirements, substantial fuel and ammunition requirements, relatively difficult to conceal.

Most tanks have vulnerable points, such as treads and radio antennae. Most tanks have thinner armour on the sides, rear and roof. Moreover, tank commanders prefer to open a hatch and sit with their head outside the vehicle whenever possible, for better visibility. All these things make tanks more vulnerable to snipers, artillery bombardment, infantry anti-tank weapons and aircraft than they might appear.

Artillery

Advantages: inflicts substantial casualties and even greater disruption over a broad area. Can strike at targets anywhere within a broad radius of the guns, making it relatively easy for commanders to shift fire to the points where they believe it will do the most good. Can use indirect fire. Can fire back at enemy artillery, a practice known as counterbattery fire. Can interfere with enemy movements and resupply efforts behind the main line of resistance.

Disadvantages: although artillery can bombard broad areas, it has historically

had difficulty ensuring the destruction of point targets within those regions. Not only has this allowed infantry units to remain combat effective despite heavy bombardment, it has helped tanks to survive artillery attack. Precision munitions of various kinds have partially overcome this disadvantage of artillery. As methods and techniques of counterbattery fire improve, artillery units must disperse over wider areas, move their guns more frequently and devote more of their own efforts to firing at enemy artillery, thus reducing their ability to perform other functions. Consumes large quantities of ammunition. Artillery cannot cooperate with other units effectively unless all are linked by an effective communications network. Towed artillery is slower than tanks and other vehicles.

Airborne/air-mobile units

Airborne troops are those that land by parachute or glider. Air-mobile troops have vehicles that allow them to land and take off repeatedly during a battle. These vehicles are normally helicopters, but may be light planes or, in hypothetical future conflicts, personal jet packs.

Advantages: can travel rapidly to any point aircraft can reach, bypassing enemy ground defences. Can land behind enemy positions. Airborne troops are typically exceptionally fit, exceptionally well trained and psychologically ready for exceptionally challenging missions.

Disadvantages: vulnerable to anti-aircraft fire when travelling to the landing zone. Highly vulnerable to both anti-aircraft fire and ground fire when landing. Likely to suffer casualties from landing accidents, especially at night or in rough terrain. Although contemporary airborne/air-mobile forces can land with heavier equipment than their Second World War predecessors, even they cannot deploy heavy artillery or main battle tanks by air. When operating behind enemy lines, airborne/air-mobile forces must usually depend on further air operations for reinforcements and fresh supplies.

Tactical air forces

Advantages: can perform similar functions to artillery across even wider swathes of the battlespace. Can travel rapidly. Can perform reconnaissance far behind the enemy's defensive lines. Can attack point targets such as tanks and specific infantry positions with cannons, rockets, missiles or guided bombs. Appropriate types of tactical aircraft can engage enemy aircraft in air-to-air combat.

Disadvantages: aircraft require secure and well-equipped bases relatively near the combat zone. Individual aircraft are costly. Not only are pilots expensive to train, but they require long periods of time to develop their skills. Therefore, air forces find it particularly difficult to afford casualties. For the same reasons, commanders seldom have access to as many aircraft as they might like. The fact that individual aircraft cannot carry enough fuel to remain over the battlespace for extended periods of time further limits their availability, and the further they must fly to reach their targets, the less time they will be able to spend there. Air

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defences force pilots to waste time and fuel on evasive manoeuvres even when they do not actually shoot down any aircraft. Air defences may also force pilots to fly at altitudes that reduce their ability to find and target opponents on the ground. Weather and terrain may also conceal ground targets from aircraft. Ground troops may further deceive enemy aircraft by using camouflage, dummy equipment, etc.

Just as attackers learned to use the new tactics to fight their way through enemy defences, defenders found that the most effective response was to adopt similar methods of their own. Just as troops on the offensive do not need to charge forward heedlessly in one great line, troops on the defensive do not need to sit passively in lines waiting for the attackers to come. Defending troops can also spread out in small units, positioning themselves so as to take full advantage of terrain and other local circumstances. Defenders can conceal themselves and attempt to lure their enemies into ambushes. Most important of all, they can seize the nearly inevitable moment at which their enemies run into difficulties to counterattack.

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Controlling irregularity

By 1918 both the Germans and the Allies had learned techniques for breaking through the once invincible trenches – and for fighting back when enemy troops broke through their own. During the middle years of the war, attacking commanders had measured their success at gaining ground in yards. Between March and July of 1918 the Germans advanced over 40 miles. The Allies then counterattacked, recaptured their lost territory, and pushed the Germans back approximately 60 more miles in the opposite direction. Nevertheless, neither army managed to destroy the other. The Germans surrendered for a combination of reasons, in which the British navy's success at blockading Germany's ports, the outbreak of a Communist revolution within Germany and the German Chief of Staff Erich von Ludendorff's hope that American president Woodrow Wilson would force the other Allies to grant Germany favourable peace terms played as great a role as the summer's battles.

The innovations that allowed platoons to win firefights actually complicated the problem of using entire armies to win wars. As battles fragmented into myriad tactical engagements among myriad small units, it became increasingly difficult for higher level commanders to direct their forces' activity in any purposeful way. Part of this problem was technical. When officers who wanted to communicate with their superiors, their subordinates, or with comrades who were meant to be supporting them had to rely on human runners carrying written messages, it was impossible for small units to support each other in a coordinated fashion.

By 1918 the signalling corps of the opposing forces had developed effective systems for combining flares, lanterns, sirens, messenger dogs, messenger pigeons, messenger aircraft and field telephones to overcome this problem. As the wireless became more common, it largely supplanted the other techniques. One of the key reasons why German Panzer forces proved so unstoppable in the first years of the Second World War

was that German officer and armoured warfare theorist Heinz Guderian had insisted on providing every tank in the German army with a radio.[14] As a side note, each of these new communications techniques presented opposing forces with new opportunities to block, intercept or tamper with each others' messages, giving planners yet another set of continually evolving measures and countermeasures to account for.

Even with improved communications, the process of sending small units to fight semi-autonomous battles remains slow and unpredictable. The more one subdivides one's forces, the longer one waits for a perfect opportunity, and the more one insists on securing fire support to cover one's movements, the slower the entire process becomes. Moreover, small units can only sustain small numbers of casualties. Even when larger units must accept greater losses, they may stand a better chance of completing their missions. This means, among other things, that soldiers practically never have the luxury of using all the new techniques fully. Instead, commanders at every level of the military hierarchy must continually make judgements about the losses they can afford to take and the amount of time they can afford to spend minimising them.

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Box 7.2 **A closer look at Panzer divisions**

As earlier sections have noted, success in modern warfare depends not on any one type of weapon, but on using different forces together in effective combinations. Units composed only of tanks would be limited in their capabilities and vulnerable in common combat situations. Armoured vehicles are not, for instance, the optimum tools for establishing control over a civilian population. Moreover, the fact that tank crews have relatively poor visibility makes it possible for enemy infantry to ambush unprotected armoured vehicles and destroy them, especially in woods, towns or other close terrain.

The reason why the German Panzer divisions proved so effective was not merely that they contained a large number of tanks. Rather, it is that the Panzer division packaged armoured vehicles with other types of force in useful proportions. The Panzer division also equipped infantry and artillery with motor transport so that all could travel at the tanks' speed. Air forces provided an even swifter source of fire support, while also scouting ahead of advancing tank forces and shooting down enemy reconnaissance aircraft that might otherwise have spotted the Panzers. Heinz Guderian, who played a critical role in organising the Panzer divisions, discussed these principles at length in his work *Achtung-Panzer*.[15]

As armies introduced new equipment, their logistical requirements increased as well. New weapons required new types of ammunition, often in vast quantities. Tanks, aircraft and other machinery require spare parts and fuel. Not only must armies transport such materiel to the battlefield, they must distribute the different types of supply to the precise points where their troops need them. If those troops are divided into small units, all of which are manoeuvring semi-independently across the battlefield, this

process becomes more difficult than ever. Moreover, those units are likely to need much greater quantities of material at some times than others – if, for instance, they are making progress against the enemy, they will normally need large infusions of supplies and reinforcements to continue. All these facts further muddle the problem of using the new tactical system to achieve large-scale results.

For these reasons, the Soviet military thinker A. A. Svechin became acutely interested in the problem of reconnecting efforts to win tactical victories on the battlefield with efforts to achieve overall strategic war aims. In 1927 Svechin published a book known as *Strategy*, in which he popularised the concept of a third level of military planning between strategy and tactics.[16] Svechin called this middle level of planning 'operational art'.

Unfortunately for the Soviet Union, Stalin had his country's most prominent theorists of operational planning killed in his purges of 1937–38. German military thinkers happened to have been working on similar ideas. The German armed forces went on to demonstrate the value of effective operational planning by crushing Poland in 1939, France in 1940, and, initially, the Soviet Union's own forces in 1941. Although Soviet commanders rediscovered operational planning as the Second World War went on, later generations of strategic thinkers have tended to associate key operational concepts with German commanders, and to refer to them using German words.

Since modern methods of war rely so heavily on adapting to local circumstances, operational success does, indeed, depend more on art than on science. The German armed forces of 1939–40 distinguished themselves for their success at encouraging commanders of smaller units the freedom to practise this art while maximising the chance that they would do so in ways that suited higher level commanders' plans. Military thinkers commonly refer to this combination of low-level initiative and high-level direction using the German word *Auftragstaktik*. English-speaking writers often translate *Auftragstaktik* as 'mission-type orders'. A 'mission-type' order explains what high-level commanders intend to achieve in general terms, but leaves lower ranking officers free to work out the best methods for making those intentions a reality.

The actual German commanders of the Second World War did not use the term *Auftragstaktik* and their procedures for writing orders were not substantially different from the procedures in other armies.[17] Germany's success at fostering and exploiting low-level initiative appears to have had more to do with the attitudes that prevailed throughout the German armed forces than with any particular technique. German military culture encouraged boldness and accepted risk. German officers of all ranks practised making decisions as a routine part of training exercises.[18] Not only did these training techniques prepare individuals to make similar decisions on the battlefield, it gave commanders at all levels experience working together, helping all of them to understand how to interpret one another's messages and how to support one another's activities.

Other methods of improving performance at the operational level of war are easier to define. Although it is difficult and frequently unwise for senior officers to dictate what small units do in combat, high-level commanders still decide where to deploy their troops before battle. Commanders also decide when and how to send those troops towards the enemy; the more effective the decisions, the more the chances are maximised that units will be in useful places at useful times.

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The basic principles of positioning troops at the operational level resemble the basic principles of positioning troops at the tactical level. For instance, a small-unit commander may send a 'point man' ahead of his other troops to reduce the chances that the entire group will stumble into an ambush together. An operation-level commander will normally send reconnaissance units ahead of his main combat forces, for much the same reason. Commanders at all levels will try to ensure that the 'point' units have enough fire power to overcome modest opposition on their own, so that their main forces will not have to waste time spreading out for combat unless absolutely necessary.

Commanders at all levels are wise to position their troops so that they can move and shoot in as many directions as possible. Commanders at all levels must try to keep their troops close enough together to come to each other's aid – while keeping them far enough apart to minimise the number that the enemy can catch in the blast radius of various area effect weapons. Commanders at all levels must try to keep some of their forces temporarily out of combat as a reserve, so that those forces will be free to take advantage of opportunities that emerge during the battle – or, perhaps, to rescue friendly units that fall into trouble. Operation-level commanders will need to take similar issues into account as they allocate supplies, organise their communications networks and decide where to position special types of weapons such as tanks and artillery.

One purpose of operation-level planning is to help small units fight their own small battles. Most small units will have similar needs – plentiful ammunition, for instance, and protection from enemy troops that may be attempting to get around them to attack them from behind. For this reason, one can reduce a great deal of the process of deploying forces at the operational level to routine procedures. Once, for instance, planners have worked out effective formations for positioning their units in common combat situations, they can train their troops to take up those formations as standard practice. Standardised operational procedures make up a considerable portion of most armed forces' military doctrine.

Some armies have chosen to base their operational planning more heavily on doctrine than others. Soviet forces, for instance, used doctrine extensively. The German army of the Second World War, by contrast, was famous for encouraging officers to improvise. Relying on doctrine forces commanders to sacrifice some of their ability to tailor plans to local circumstances, but it saves time, helps troops learn to carry out complex activities under stress, and helps friendly commanders anticipate one anothers' needs and actions, thus allowing them to cooperate more effectively.

There is, however, more to operation-level planning than providing general support to tactics-level units. As operation-level commanders position their troops and resources, they have the opportunity to concentrate forces in selected areas. This is the point at which operational planning connects with the higher levels of strategy. Just as commanders of small units attempt to find places at which the terrain, the state of the enemy forces and other factors make it possible for them to carry out their missions, operation-level commanders may attempt to concentrate their forces at places which, due to similar considerations, allow them to make tangible progress towards achieving the larger aims of the war.

Clausewitz referred to the point in which an army focuses its main effort as the *Schwerpunkt*. Contemporary military writers have adopted this term for the area at

which commanders concentrate their forces in operational planning. Like so many things in warfare, forming a *Schwerpunkt* is simple in theory but complicated in practice. The obvious way to concentrate one's forces is to mass the maximum possible number of troops, tanks, artillery pieces and other military assets in the same place – but this is only useful if all of them can fight effectively together.

As earlier sections of this chapter have stressed, modern weapons make it suicidal for soldiers to cluster together in combat. Even when forces disperse sufficiently to fight on a modern battlefield, excessive numbers of troops operating in congested areas get in one another's way. A *Schwerpunkt* can easily become a colossal traffic jam. Moreover, troops fighting in overcrowded areas of operations are at high risk of firing on their own comrades by mistake.

For these reasons, the art of forming an effective *Schwerpunkt* relies on effective logistical planning. This art depends particularly heavily on commanders' ability to use roads and other transportation infrastructure efficiently. Nevertheless, even the most skilful logistical planners are likely to encounter limits to the number of troops and vehicles they can bring to bear at any given location. Therefore, commanders must develop ways to combine the combat power of their forces without physically placing all their units in the same area.

Thus, when operation-level commanders wish to maximise their combat power at a particular point, they seldom try to mass all their forces directly opposite the enemy. Instead, they feed their units into the battle in a series of waves (also known as echelons), so that the number of friendly troops attempting to move about the battlefield at any particular moment remains manageable. This has the added advantage of allowing commanders to direct units in the later waves to the areas of the battlefield where they can do the most good. Late-arriving units may, for instance, reinforce units from earlier echelons, block gaps where opposing forces have broken through or 'mop up' enemy forces which earlier waves left behind.

When operation-level commanders prepare to fight this way, they must normally position the units designated to take part in the various waves one behind the other. Thus, the column of units waiting to join the battle may stretch back for as much as several hundred miles behind the nominal front. Military thinkers refer to the distance from the foremost wave to the one in the back as the 'depth' of the formation. One should note that aircraft, artillery and other long-range weapons allow both sides to attack units scheduled to take part in the enemy's later waves before they ever have a chance to reach the so-called front-line. Troops that smash or sneak their way through the enemy's forward defences may attack units in rear echelons as well.

Success at the operational level of warfare often depends on success at winning the so-called 'deep battle' by preserving one's own rearward echelons while disrupting those of the enemy. Soviet military thinkers have traditionally emphasised this concept. One should note that, when both sides attack the other in depth, the idea that there is a front-line where fighting takes place and a relatively safe rear area behind it frequently loses all relationship with reality. This is why contemporary military thinkers often refer to the area in which fighting takes place as a geographically broad 'battlespace' and to the band along which the foremost opposing echelons meet, not as a sharply defined 'front', but as the 'main line of resistance' or as the 'forward edge of the battle area'.

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Depth is only one way to achieve a greater concentration of force. Not only may commanders concentrate their forces' efforts in space, they may concentrate their forces' efforts in time. In other words, they may order units to attack the enemy in many different places at once. Moreover, as armies field an increasing variety of long-range weapons, commanders increase in their ability to keep their units physically dispersed while having all of them shoot at the same selected targets, thus achieving 'concentration of fire'. Operation-level commanders may also try to maximise the strength of their forces in the *Schwerpunkt* through such methods as deceiving the enemy in order to gain surprise, striking too rapidly for the enemy to respond, targeting the enemy's weaker units, taking advantage of terrain, assigning their most brilliant tactical commanders to the most important missions or any other means of gaining the upper hand.

Not only may commanders wish to concentrate combat power in the broad sense, they may wish to concentrate specific types of forces. One of the best-known reasons why the German forces won such spectacular victories in the early years of the Second World War is that they had the wisdom to keep their tanks together in dedicated *Panzer* (armoured) divisions, rather than spreading them out among the infantry. This made it possible for the tanks to attack in sufficient numbers to break through the enemy lines. Once they were through, they were able to take advantage of their speed to advance rapidly into the enemy's rear, rather than waiting for soldiers on foot.

As one considers the variety of ways in which commanders may concentrate combat power, one sees that the concept of a *Schwerpunkt* can mean dramatically different things in different situations. Therefore, the concept is only useful for those who are prepared to apply it flexibly. Moreover, commanders must take care to form their *Schwerpunkts* in such a way that they can respond to the changing circumstances of war. At a minimum, commanders will wish to position their units so that the *Schwerpunkt* can advance or withdraw in more than one direction.

Commanders will not be able to use any of the methods for forming a *Schwerpunkt* unless they have trained, organised and equipped their troops to perform them. To concentrate forces at the operational level of warfare, one must prepare extensively and act spontaneously. All too often, these demands prove incompatible. Little wonder that even the most famous commanders working within the most vaunted armies have so often failed to reconcile them. For all their victories of 1939–41, the Germans lost the Second World War.

Still, for all its intangibles, the art of concentrating forces at the operational level of planning remains basic to the problem of achieving meaningful results in war. Concentration allows one to gain numerical superiority at critical times and places. A relatively small force that can use all its strength in a single engagement is more powerful than a much larger forces that is too dispersed to bring its resources to bear. Further, by massing sufficient force to overcome the enemy at well-selected points, the ability is gained to injure the enemy in especially significant ways.

To begin with, concentrating one's forces maximises one's ability to drive deep into the enemy's system of defences. As a general rule, the deeper one manages to penetrate, the more seriously disrupted is the enemy's ability to fight. One reason is that one practically always kills enemy soldiers and destroys enemy equipment in the process. The

harder the enemy tries to resist, the more damage one will have the opportunity to inflict – and therefore it is often worth attacking otherwise unimportant territory simply because the enemy may try to defend it.

The further one's forces penetrate, the more they can interfere with the enemy's transportation and communications networks. Forces that manage to penetrate their opponents' defences can also strike airfields, headquarters, artillery positions, logistical depots and other vulnerable enemy assets. Additionally, breaking through the enemy's defences is a particularly effective way of shocking, confusing and disheartening the enemy's troops. Moreover, when one breaks through enemy forces in any particular location, the enemy units on either side must either retreat or take the risk that the breakthrough forces will turn to attack them from the flanks or the rear.

Victims of flank and rear attacks commonly find themselves at a tactical disadvantage, particularly if they are simultaneously trying to engage enemies in front of them. Seldom is it possible for troops to position themselves so that they can fight at full effectiveness in all directions. (There are partial exceptions to this principle – airborne troops, for instance, must prepare to confront opponents on all sides when they parachute into the middle of an enemy position, and commanders who expect to be surrounded may form their units into 'hedgehogs' with soldiers in a ring facing outward.) Furthermore, troops who fear that they may be surrounded are particularly vulnerable to panic.

Since flank and rear attacks are frequently more effective, operation-level commanders try to move their forces into positions from which they can carry them out. If that is impossible, operational commanders are still wise to move their forces to block or avoid flanking attacks by the enemy. This process may be as simple as locating one's *Schwerpunkt* in an area in which the terrain and the disposition of the enemy forces allow friendly troops to follow up a breakthrough by turning to 'roll up' opposing forces on one side or the other. Attackers may be able to inflict even greater damage by going through or around their opponents' defences in two places so as to surround the enemy troops in the middle.

Here, once again, mid-level war planning resembles tactics. Just as low-level commanders try to win small battles by moving their sections and platoons into positions that afford them better cover or a better shot at the enemy, mid-level commanders may try to put significant portions of their armies in advantageous positions through a process of 'operational manoeuvre'. The two practices have so many things in common that it is worth noting the issues that make manoeuvre at the operational level special.

One point worth noting is that although armies may manoeuvre at the operational level, combat is – by definition – tactical. As earlier sections have noted, combat at the tactical level involves a complex mix of variably sized – and often small – units fighting variably sized – and often small – battles. The fact that a division of perhaps 8,000 men has managed to attack an enemy division from the rear through a successful operation-level manoeuvre does not guarantee that its troops will be able to shoot their opponents in the back! In fact, many of those troops may learn that, whatever cunning feats their commanders have accomplished at the operational level, the enemy soldiers they actually happen to be fighting have found tactics-level ways to outmanoeuvre them. Mid-level commanders must accept that their ability to

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influence these engagements will be limited at best. For this reason, operation-level manoeuvres must be exceptionally simple and exceptionally flexible. One of the few – and most important – things mid-level commanders can do to influence the outcome of operational manoeuvres is to gather sufficient reserves to follow up tactics-level successes (or defeats) with further operations.

Another distinctive feature of operational manoeuvre is its scale. Modern industrial economies make it possible for even medium-sized military powers to wage war over thousands of square miles using hundreds of thousands of troops. Earlier sections have noted that the problem of concentrating such an army is mainly one of logistics. The logistical challenges of shifting major portions of such armies about in search of a superior position are even more significant.

Here, operational planning intersects with strategy, grand strategy and high politics. To supply ambitious operational manoeuvres, military commanders may need more fuel, motor vehicles, amphibious landing craft and other material than their countries can easily provide. Either the operational commanders must modify their plans or the nation's political leadership must find a way to make sufficient resources available. If political leaders and operational commanders cannot work together effectively, the manoeuvres are likely to end in disaster.

Moreover, the space required for operational manoeuvres may be larger than the countries involved in the war. This may make the manoeuvres particularly effective – it may, for instance, allow attackers to overrun entire enemy states – but it may also mean that commanders are unable to put their plans into effect without violating the territory of neutral countries. This clearly has profound political implications. In a similar vein, small states may find that they cannot defend themselves without cooperation from neighbours – and without accepting that they may lose most or all of their own territory, at least temporarily.

Operational manoeuvres make for dramatic chapters in history books, but wise commanders take care to be realistic about what such movements can accomplish. Situations in which armies can conquer entire countries merely by staging an offensive operation do arise, but they are rare. The rest of the time, it is less clear what operational manoeuvre can accomplish. Although troops that manage to attack the enemy from the flank or the rear can cause heavy casualties, this is not always the most promising way to inflict attrition on the enemy.

Enemy troops may, in fact, resist flank and rear attacks as vigorously as they resist attacks from the front. Worse, troops that manoeuvre too rashly to get around the enemy flanks expose themselves to situations in which their enemies can do the same to them. Moreover, troops that manoeuvre without regard for the political consequences risk drawing new opponents into the war. Even when manoeuvres succeed, they may be too costly in terms of time and resources to justify the investment. One can often inflict attrition at lower cost and lower risk merely by concentrating one's forces and methodically pushing them forward.

Manoeuvre advocates would respond that there can also be many other ways to cripple opposing forces, if one is bold and perceptive enough to take advantage of them. Even if one cannot overrun the enemy country in its entirety, one may be able to manoeuvre for control of important bridges, road junctions, industrial regions or

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other strategically useful objectives. One may be able to overwhelm one's enemies psychologically by the speed, audacity and perhaps savagery of one's actions. One may be able to undermine enemy morale or influence enemy leaders by carrying out operations that have some sort of symbolic significance. In many countries, for instance, people are likely to perceive losing their national capital as serious defeat, even if the city is unimportant in purely military terms. Military thinkers of the early twenty-first century encouraged commanders to seek ways of influencing enemy morale and decision making in writings on so-called 'effects-based operations' (EBO).

Carl von Clausewitz entertained the possibility that one might be able to achieve strategic war aims through some such master stroke in a chapter titled 'The key to the country' and later throughout his work in various passages on the concept which he called 'centre of gravity'.[19] Although Clausewitz believed that there were circumstances in which commanders might be able to achieve results by striking at vital points, he also warned readers that these circumstances were rare: 'The real key to the enemy's country is usually his army.'[20] The process of overcoming enemy armies remains slow, risky and cruel.

Conclusion

Few of the problems in modern land warfare are new, and few of the solutions are completely new either. Entrenched defenders were almost impossible to overcome in the early years of the First World War, but walled cities were almost impregnable in ancient Greece. British commanders at Cambrai achieved a success by combining tanks with other types of force, but Alexander the Great won victories by combining phalanxes of spearmen with cavalry. Books Three to Eight of Carl von Clausewitz's *On War* deal extensively with the issues twentieth-century theorists encountered as they sought methods to use forces effectively at the operational level of warfare. British forces developed effective fire and movement tactics for use against the Boers in the war of 1899–1902.[21] The evolution of land warfare over the past two centuries also reminds us of more general truths about warfare, such as von Moltke the Elder's warning that no plan survives first contact with the main body of the enemy forces.

The story of modern tactics and operations is largely a story of how age-old principles of war manifest themselves under contemporary conditions. As a strategist, one must understand this story in order to assess what one might be able to do with one's own forces, what one might expect of one's opponents, and, if one is unhappy with what one finds, what steps one might take to rectify the situation. Sun Tzu suggests that such 'estimates' are the foundations of strategy.[22] When one reflects that, during the Cold War, national leaders had to assess their armies' chances of winning a land battle for Europe to decide when it might be necessary to launch an all-out nuclear war, one sees how fateful such 'estimates' can be.

Since the Second World War, military thinkers have repeatedly announced that new technology was making so-called 'conventional' land warfare obsolete. During the 1950s, for instance, both American and Soviet military manuals downplayed the

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concept of operational art.[23] Military planners in both countries assumed that future wars would begin with widespread exchanges of nuclear weapons. The side that prevailed in such a nuclear exchange would win the war without needing to stage a protracted land campaign, and the mass armies necessary to carry out land campaigns would not survive long enough to fight.

By the 1960s, however, western and Communist strategic thinkers alike had concluded that it would be preferable – for reasons that should be obvious – to accomplish their strategic aims without nuclear war. Strategists also realised that, unless they maintained the ability to fight in other ways, they might lose this option. Not only would that increase the chances of nuclear war, it would sabotage their countries' ability to influence political events through military threats, since opponents would know that their leaders would be reluctant to use force in any but the most extreme circumstances. For this reason, strategists on both sides of the Iron Curtain became interested in land warfare again. This, in turn, led them to rediscover operational art.

Late twentieth-century strategists have also debated the degree to which insurgency, guerrilla warfare, asymmetric warfare, low-intensity conflict and other variants of irregular warfare might serve as an alternative to so-called conventional land warfare. The fact that guerrillas who seem to lack the numbers, training and equipment for conventional war have so often embarrassed the armies of powerful states appears to support this idea. Chapters 8 and 9 discuss irregular warfare in detail. For the purposes of this chapter, one may note that, on examination, irregular warfare consistently proves to have more in common with conventional war than many assume.

One of the main reasons why American forces found it so difficult to fight their Communist opponents in Vietnam, for instance, is that the Communists were able to combine guerrilla raids with extended operations in which thousands of troops attacked using an increasingly complex range of modern weapons systems, notably tanks and heavy artillery. Meanwhile, throughout its history, the Soviet Union faced continual uprisings by ethnic and political factions. The Soviet government found it useful to suppress these asymmetric enemies by maintaining an internal army of between 500,000 and 750,000 troops, again equipped with armour, artillery, combat aircraft, and the other instruments of contemporary combined arms warfare.[24] Weapons function the same way in irregular warfare as they do in the regular kind. The side in which commanders succeed at sending their troops into battle equipped to use modern weapons most effectively is likely to win. The tactical and operational concepts that emerged from the world wars of the twentieth century remain the most straightforward guides to doing so.

This leaves open the question of whether there might be political circumstances in which actual combat plays a secondary role in determining the victor. One might, for instance, ask whether it has become possible to defeat western liberal democracies by influencing their citizens through the news media. One might also wonder whether, just as modern firearms forced strategists to rethink their methods of waging land war in the twentieth century, other emerging technology might have a similar effect in the twenty-first.

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Key points

1. Modern weapons are so lethal that ground troops must adopt complex tactics to survive.
2. Those who wish to use ground troops to achieve strategic goals must ensure that their plans allow friendly soldiers to use those tactics effectively.
3. The tactics of modern land warfare feature small unit manoeuvre, extensive use of fire and movement and coordinated action by troops equipped with a wide variety of weapons systems (combined arms).
4. Since these tactics require small units to act semi-independently, they actually complicate the problem of higher level commanders trying to achieve larger strategic goals.
5. Therefore, military thinkers have had to give renewed thought to the middle, or operational level of war planning, which links tactics with strategy.
6. Effective operational planning requires preparing troops to implement their commanders' overall goals while responding flexibly to local circumstances, deploying troops so that they can bring the maximum possible force to bear at the place where it is likely to prove most effective and, perhaps, large-scale manoeuvre.

Questions

1. **What makes it useful to distinguish between operational planning and strategy?**
2. **How often can one win wars by striking at some sort of enemy 'centre of gravity'?**
3. **What forces would you want in order to block an enemy armoured offensive in a desert?**
4. **How differently would you answer question 3 if the offensive took place in a settled area?**
5. **To what degree can fire power compensate for inferior numbers of troops in contemporary war?**

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8 Sea power

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Reader's guide: Defining sea power and the maritime environment; gaining command or control of the sea; using sea power for strategic effect; maritime power versus continental power; modern sea power issues: sea power in the information age, piracy, the new US maritime strategy.

Introduction

As with so many other subjects in strategic studies, discussion of strategy at or from the sea is somewhat clouded by problems of definition. The three main definition contenders for this form of strategic power are 'maritime', 'naval' and 'sea'. The subject is further complicated by the fact that individually these terms may mean substantially different things to different people. Essentially, the problem of definition comes down to scope. What capabilities, resources and activities should be included in an analysis of strategy at or from the sea? The terms naval and maritime are perhaps the easiest to distinguish. It is generally accepted that the former refers to military capabilities. This includes platforms such as ships, aircraft and submarines, as well as the infrastructure on which they rely. The personnel who man these platforms also represent a crucial element of naval power. In contrast, maritime is a far more encompassing term, including as it does 'the full range of mankind's relationship to the seas and oceans'.[1] In addition to military assets, maritime includes such activities as merchant shipping and insurance. It also covers assets from the other geographical environments that may influence actions at sea, such as land-based air power. The difficulties of definition really begin when one considers sea power. For Geoffrey Till, sea power is synonymous with the broad definition of maritime power.[2] In contrast, Eric Grove prefers to limit his discussion of sea power to military matters.[3] This chapter will adopt the latter, more restrictive approach, and thereby use the term sea power to discuss the use of military power at or from the sea for the attainment of policy objectives.

While it is undoubtedly the case that non-military maritime assets play a role in power exercised at or from the sea, in strategic terms this role is limited. For example, as a mode of transport merchant shipping may play an important role in periods of both peace and war. Nonetheless, in relation to the projection of military power for policy effect, they are secondary to dedicated military capabilities. And, in those instances when merchant shipping is utilised in wartime for the transportation of men and material, it could be argued that they have effectively become military in character anyway.

By restricting our definition of sea power to military capabilities and activities, we avoid the problem of defining sea power so broadly that it ceases to have a strong profile in strategic terms. In the exercise of sea power, it is doubtful that naval commanders spend much time worrying about maritime insurance. Finally, when considering the relationship between mercantile and military assets, as Grove notes in *The Future of Sea Power*, the traditional idea that naval power is built on a strong merchant fleet is no longer valid.[4]

Even within this narrower definition, sea power remains a very flexible instrument of strategy. This chapter will discuss the many strategic options open to those who possess a form of sea power, as well as how to offset the sea power of others. As the air environment shapes the advantages and disadvantages of air power, so it is with sea power. Thus, the first task of this chapter is to outline the characteristics of the maritime environment.[5] Having outlined the environment and the characteristics of sea power (with the aid of the great theorists), this work will address the most important questions in the discipline. In the first instance, we must address the issue of sea power's relative significance in the outcome of strategy. There is a school of thought which argues that states with a strong sea power dimension have an advantage over their continental enemies in major conflict.[6] This hypothesis will be put to the test.

The second main area of discussion relates to modern sea power, and in particular how it will develop in the near future. Through concepts such as network-centric warfare and the works of men such as Admiral William Owens, sea power has been at the forefront of the revolution in military affairs (RMA) debate.[7] However, in some important respects sea power may buck some of the main trends in military transformation. Whereas the RMA is enabling 'the small and the many' in some areas, future sea power may witness the development of fewer, larger, but more versatile platforms.[8] Of course, the development of future naval capabilities will be influenced not only by technological possibilities, but also by mission requirements. Thus, the future maritime security environment must be understood. In this respect, piracy, an increasingly hostile littoral environment, and the rise of potential peer competitors to the United States (China), all appear to be currently occupying the minds of sea power theorists and practitioners.

The maritime environment

When discussing the maritime environment a number of well-worn, but important facts and figures enable us to understand both the significance of sea power and its inherent characteristics. The land masses of the world are connected by a continuous ocean that covers 70 per cent of the globe's surface. Unlike the land and air environments, which are dissected (to a greater or lesser degree) by political boundaries, the open sea is legally available to all. This gives the sea the attributes of a global highway for the transportation of civil and military vessels. Indeed, sea transportation dominates global trade, accounting for over 90 per cent by weight and volume.[9] This reliance on the sea has significantly shaped the development of human societies. The majority of the world's great cities lie within 200 kilometres of a coastline. And, as Till reminds us, the interaction of these sea-based communities has had a significant impact on the

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exchange of cultures and ideas (including technology), in addition to promoting a rise in the global economy.[10]

At first glance, the sea may appear to be rather empty and featureless. This is, however, far from the truth. The world's oceans contain vast food and mineral resources. In relation to the former, 20 per cent of humanity's daily protein intake originates from the sea. In terms of mineral extraction, as Till notes, oil and gas deposits have become increasingly economically viable and significant.[11] Although from the surface, the sea may look rather uniform in nature, this is not the case. Human usage of the sea is affected by a number of factors. This includes weather and the associated impact on sea conditions, varying sea depths, currents, and the influence of land masses. The physical features of coastlines (and how humans utilise them) can have a significant impact on sea power. The formation of harbours, inland seas, or the existence of choke points, all shape sea power to a greater or lesser extent, depending on context. In addition, man has the ability to shape the geographic context of sea power in rather dramatic ways. The building of the Suez and Panama Canals are extreme examples of how man can shape the maritime environment to his advantage. Also, technological developments have significantly altered the way in which man is able to use the sea environment. Self-powered vessels (those not reliant on the wind) have given navies greater flexibility in their movements by breaking their dependence on prevailing winds. In addition, the development of submarines has enabled man to explore and utilise the submarine environment.

The characteristics of sea power

Box 8.1 **The characteristics of sea power**

Platform centric
Versatility
Global access
Manoeuvrability
Poise

The nature of the maritime environment, in conjunction with man's ability to utilise it, endows sea power with some significant characteristics in the practice of strategy. First, and most obviously due to the inhospitable nature of the environment, sea power is platform centric. This creates both advantages and disadvantages for those exercising sea power. Like most platform-centric forms of strategic power, sea power is relatively expensive. The platforms are costly, both to procure and operate. Such costs ensure that even the greatest navies have relatively few warships. The United States Navy, which is not surprisingly the largest in the world, has fewer than 300 (and this includes submarines). The Royal Navy has approximately 56 warships (including both mine countermeasure ships and submarines).[12] With such small numbers, warships tend to be highly prized assets, the loss of which is keenly felt. As the experience of the Royal Navy during the Falklands War indicates (almost), or indeed the Japanese experience in

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the Pacific War, losses can quickly accumulate to the point at which an effective maritime campaign becomes unsustainable. There is, however, a significant advantage to such a reliance on large platforms: they tend to be fairly versatile. A warship is able to perform a number of different functions and roles. Among other things, it can house various forms of air power, engage in attacks against other ships or against the shore, act as an intelligence platform, move large numbers of people and supplies (both military and civilian), and provide substantial mobile medical and disaster relief facilities.

As a direct consequence of the existence of a world ocean, naval forces have the advantage (all things being equal) of global mobility and access. While historically certain landlocked areas have been beyond the reach of sea power, this is increasingly less the case in the modern environment. Sea power's successful adoption of air power ensures that there is nowhere on the surface of the earth beyond the reach of naval forces. This is, of course, also true of air power. However, the limited lift capacity of air platforms limits what can be done at great distance. Self-evidently, this same limitation applies to naval forces that rely on air power in order to reach more isolated areas of land. However, because sea-based air power can operate just offshore, in theory it can operate with higher sortie rates.

As a direct result of operating in an essentially continuous ocean, sea power has great manoeuvrability. Within the confines of the physical features of the sea (including the shoreline) and enemy actions (for example, the creation of a hostile littoral environment), naval forces can choose their axis of advance. This provides a number of advantages. As witnessed on D-Day, the enemy may be unsure of where an amphibious assault will occur, and thereby have to spread his defensive forces more thinly. A maritime force can completely outflank the enemy, as occurred successfully at Inchon during the Korean War. A maritime force can also engage and disengage more easily than land power is able to do.

A crucial characteristic of sea power is poise. Partly due to the legal neutrality of the high seas, and partly due to a ship's relative ability for self-sustenance, naval forces can stay on station for extended periods of time, without having to commit themselves to action. In this manner, a naval force is able to exert leverage for long periods, without the political and military ramifications of violating someone else's territory or air space. It should be noted that the deployment of land forces along a border or into an ally's country, or even just their use in military exercises, can have a similar effect. Nonetheless, it is generally true that the deployment of land forces tends to be regarded as more threatening and/or more of a commitment. In this sense, sea power is a more flexible instrument for policymakers. By deploying naval forces policymakers may be able to exert influence while retaining close control over the military and political situation. Also, a modern warship, especially if it has air capability, brings with it considerable fire power for coercive purposes. Alternatively, its lift capacity may be vital if called upon (either to deliver supplies or evacuate nationals from a hostile area).

Command or control of the sea

An important prerequisite for taking full advantage of the characteristics of sea power is to gain some form of command or control of the sea. Again, this is an area

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of the subject that suffers somewhat from problems of definition. As indicated in the title of this section, the issue of definition centres on the two terms 'command of the sea' and 'sea control'. The former, which is strongly associated with the American naval theorist Mahan, is often taken to denote a circumstance in which one protagonist has the ability to use the sea for his purposes while denying the same to the enemy.[13] Whereas sea control normally refers to a less absolute imbalance in the strategic situation. As Admiral Stansfield Turner notes, sea control depicts a situation in which command of the sea environment is limited in both time and space.[14] The latter should not be taken necessarily as a watered-down, less effective form of command. For most operations, command is only required in a certain area for a certain period of time. In this sense, a force attempting to achieve total command of the sea may dedicate so many resources to the task that subsequent exploitation of said command may be impossible. At this juncture, it is important to note that command or control of the sea is not an end in itself. Rather, command establishes a situation in which the maritime environment can be exploited for strategic effect. Command is therefore required to enable sea-based operations without fear of significant interference from the enemy.

The level of sea control that can be established will be heavily dependent on one's ability to deal with any relevant enemy naval forces. However, when attempting to establish sea control the enemy's naval forces may not be the only problem. As the Falklands War illustrates, the enemy may be able to interfere with one's sea power operations using land-based air assets. In the Falklands, the main task for the Royal Navy was to put ground forces ashore and then provide them with support. Although this was eventually achieved, the operation was less effective and more costly than planned. This was due to the actions of the Argentinian Air Force, which destroyed seven British ships, including two destroyers and two frigates, as well as an amphibious craft and landing ship. Equally worrying for the force attempting to establish sea control are submarines, mines and shore batteries.

Sea control can be pursued by a number of means and methods. The method that has attracted most contentious debate is decisive battle. For Mahan, this was the preferred means for achieving command of the sea. While this approach has been criticized for being overly simplistic and one-dimensional, there is some merit in it. If the enemy fleet can be brought to battle, and destroyed, then command of the sea can be potentially achieved in an afternoon. In addition, an enemy fleet on the bottom of the sea cannot challenge one's sea control for some time to come. A fleet can be rebuilt, but this is both time consuming and expensive. Finally, and assuming that the victorious fleet is in a reasonable condition, the winning side is able to move directly to exploit the newly won sea control, rather than having to expend more time and resources on neutralising further enemy threats.

As a method of achieving sea control decisive battle contrasts to blockade, which requires continuous operations to maintain control of the sea. The important point to remember on this issue is that battle is not an end in itself. Rather, it is to be thought of largely as a means to achieve control of the sea. However, battle has other potential benefits. Engagement may be a means to coerce the enemy by inflicting losses and inducing pain. It is reasonable to assume that had the Argentineans sunk a few more

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British ships during the Falklands War, the British may have felt compelled to withdraw due to the increasing costs of the conflict.

Despite the potential advantages to be gained from decisive battle, historically, the occurrence of a genuinely decisive engagement is rare. Having identified Trafalgar (1805), Navarino (1827), Tsushima (1905) and Leyte Gulf (1944) as examples, Speller notes correctly that more often than not the enemy fleet is destroyed in a series of encounters.[15] This does not undermine the potential significance of battle; rather, it presents a more realistic interpretation of its role in gaining sea control. Nonetheless, the emphasis on battle should not be underestimated. It is fashionable in modern strategic studies to downplay the role of battle in strategy, and to lampoon those theorists who emphasise violent engagement (Mahan and Clasuewitz, for example). As an alternative to battle, some modern commentators proffer instead complex and/or subtle theories of control. In such visions, the security agenda grows ever wider, and the means become ever more subtle. However, in such theories there exists the real danger of over-egging the pudding. Clausewitz is compelling when he wrote that the enemy can change everything with a successful battle. In addition, his proclamation to the advantages of the simple over the complex is hard to ignore.[16]

Nonetheless, it is important to recognise that seeking decisive battle is fraught with challenges and potential risks. It may be that, despite the best efforts of those seeking an engagement, the enemy cannot be brought to battle. In such a scenario, not only will sea control be unobtainable via battle, but time and resources (which could have been used elsewhere for strategic effect) would have been wasted in the effort. There is also the real danger that even if the enemy can be brought to battle, it may not end as intended: the battle may be lost. As Admiral Jellicoe was aware during the First World War, the results of a lost battle can potentially be catastrophic for a maritime power. Thus, whether or not a decisive battle should be sought is entirely dependent on context. Certain questions need to be asked when considering decisive battle. Will it achieve or contribute towards the attainment of sea control? Can the enemy be brought to battle on favourable terms? How likely is success? Would failure be damaging? Essentially, taken together these questions are asking the same thing: will decisive battle contribute towards positive strategic effect?

Beyond battle, a further method for achieving sea control is blockade. In theory, enemy maritime activities (both civil and military) can be prevented via a close blockade of the enemy's ports. Such a blockade can be undertaken by various means, including surface vessels, submarines and mines. However, although certainly possible, close blockade is wearing on both the vessels and men conducting it. Blockade has also become increasingly dangerous as the littoral environment has become more hostile.[17] Thus, it may be the case that the blockading power has to settle for distant blockade instead. This, however, brings with it a potential downgrading of the blockade's effectiveness. Under a distant blockade, it is more likely that some enemy vessels will be able to successfully run the blockade and gain access to the open sea. This ability for the enemy to gain limited access to the open sea obviously reduces the possibility for the blockading power to enjoy total command of the sea. However, a distant blockade may still enable control of the sea in a limited space for a limited period of time. And as noted earlier, that may be enough to achieve one's operational and/or strategic objectives.

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As in all forms of warfare, operations to achieve and exploit sea control are not one-way affairs. One should expect an enemy to attempt to offset one's sea control. Rather than attempt to gain control of the sea, weaker maritime powers may opt for a campaign of sea denial: 'Here the objective is not to use the sea oneself, but to prevent the enemy from doing so.'[18] Or, as Hughes describes it, the object of sea denial is to 'deny safe movement'.[19] For a continental power such as Imperial or Nazi Germany, whose wars were to be won and lost on the continent of Europe, attempting to gain command of the sea may have been both unrealistic and unnecessary. However, two of their main enemies, Britain and the United States, were heavily reliant on maritime communications. Thus, in both world wars, the objective of Germany's U-boat campaigns was to deny use of the sea to their maritime enemies. Sea denial, rather than sea control, was the focus of Germany's sea power operations. Denied the ability to utilise the sea for substantive strategic effect, the ability of the United States and Britain to interfere with German control of Europe would have been severely curtailed. Most obviously, D-Day would have been impossible in the absence of sea control. Just as importantly, the Soviet war effort would have been substantially undermined without the transportation of vast quantities of equipment to the Communist ally.

Sea denial can be achieved by various methods, and with varying degrees of efficacy. A state that has a heavy reliance on seaborne trade and supplies is vulnerable to a guerre de course, in which transportation shipping is attacked, normally by individual vessels or small groups of surface raiders or submarines. The German U-boat campaigns during the First and Second World Wars are examples of relatively successful sea denial operations. For example, during the Second World War German U-boats sank, destroyed or captured 3476 Allied merchant ships.[20] Such a rate of attrition famously led Winston Churchill to declare the U-boat threat to be the one threat that really concerned him during the war.[21] Nonetheless, despite such concern the German guerre de course, although it interfered with Allied control of the sea, did not produce war-winning effects. This was partly due, once again, to the paradoxical logic of strategy. Just as a relatively weaker sea power can offset (to some degree) the level of control of a stronger opponent, so can the latter offset the effects of a sea denial campaign. Intelligence, convoys and air cover all helped to reduce the impact of the U-boat campaigns.

However, in order to have strategic effect a sea denial campaign need not be a total success. The U-boat campaigns, conducted with relatively few vessels, not only reduced the amount of supplies that made the trip across the Atlantic, but also tied up Allied resources, including naval resources, that could have been utilised elsewhere. This effect can be seen to a greater degree during the sixteenth-century conflict between England and Spain. Despite the fact that English privateers only intercepted 2 per cent of Spanish treasure crossing the Atlantic from the New World, the threat produced a disproportionate response from imperial Spain. Again, this diverted both Spanish resources and attention away from other theatres.[22]

Sea denial does not have to be as active or aggressive as a guerre de course. The enemy's maritime operations can be impaired by a 'fleet in being' approach. An inferior sea power may choose not to engage in directly offensive operations. Rather, it can attempt to avoid enemy forces in order to maintain its fleet, either by remaining in a

defendable harbour or by seeking security in the vastness of the ocean. Although not active in an aggressive sense, the mere existence of said fleet is likely to be a concern for the superior sea power. Thus, resources will have to be diverted to maintain a watch on the enemy fleet in being. As noted in relation to a guerre de course, these diverted resources could have been used in exploitation of sea control.

Despite its appeal, a largely passive approach to fleet in being does not fully exploit the potential of this method of sea denial. A fleet in being campaign can be combined with raiding operations against shipping, coasts and even port facilities. This not only has the advantage of depleting enemy resources via raids (albeit in a small manner), it also increases the need for the enemy to divert substantial resources to deal with a real, as opposed to a potential threat. It is even possible for a fleet in being campaign to morph into an attempt to gain sea control. This was very much the approach advocated by the French naval officer Raoul Castex, who theorised that an inferior fleet could exploit the manoeuvrist characteristics of naval forces in order to manipulate the balances of forces between the foes. In Castex's theory, enemy resources could be diverted by such actions as raids and a guerre de course. With the enemy dispersed, rapid manoeuvre would enable a concentration of force against a section of the enemy fleet. Over time the balance of forces could begin to favour the initially inferior fleet.[23] As Germany hoped to achieve during the First World War, a fleet in being can look for opportunities to attack small detachments of enemy forces, and thereby defeat the enemy's fleet by a process of gradual attrition. Of course, these more active and aggressive forms of fleet in being need to be carefully managed. Undue risk taking, leading to substantial losses, defeats the very purpose of a fleet in being approach.

Sea denial can be performed by those with few or no naval assets of any significance. Short-range fast-attack craft, mines, shore-based batteries and aircraft can all be used to create a hostile littoral environment, and thereby deny control of the sea in a specific locale. Such an idea was developed, but eventually rejected, by the Soviet New School in the 1920s and 1930s.[24] It does not take much imagination to understand how differently D-Day could have ended had the Germans been able to create a more hostile littoral environment.

The discussion thus far indicates that sea denial can have varying degrees of success and scope. A less than perfect sea denial operation may still achieve its strategic objectives. Depending on the circumstances, it may be enough to divert enemy naval resources, reduce the flow of transportation shipping, or deny free and safe access to a locale for a specific period of time. Taken together, our analysis of sea control and sea denial highlights a number of important points. The quest to gain control of the maritime environment, as with other strategic activities, is a dynamic one. Control cannot be taken for granted. Indeed, it normally requires constant action and vigilance. The intelligent enemy is just as prominent in the maritime environment as elsewhere. In addition to the enemy, context is also critical. How much control or denial is required will be dictated by the circumstances in which one operates. Thus, the maritime commander must not be guided purely by doctrinal concepts, but also by the specific circumstances in which he finds himself. Any discussion of sea power, whether it relates to the value of battle or a fleet in being approach, must be grounded in a specific context. That said, Clausewitz is still persuasive when he wrote that destruction of the

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enemy's forces is normally the best place at which to start.[25] Finally, it is important to note that an important balance has to be struck between achieving sea control and exploiting it. As Corbett so clearly argued, command of the sea is nothing in itself. Rather, it has significance only inasmuch as it can be exploited to exert leverage ashore.[26]

Exploiting sea control for strategic effect

Box 8.2 **The uses of sea power**

Raids
Amphibious assault
Naval fire support
Coercion
Nuclear deterrence (SLBMs)
Blockade
Guerre de course
Logistics
Intelligence
Humanitarian tasks
Good order at sea
Naval diplomacy

Once some form of sea control has been achieved, there are many options open to the maritime commander, depending on circumstances and the capabilities at his disposal. As Till notes, in a general sense the exploitation of control of the sea can be divided into two categories: power projection ashore and transportation.[27] Of course, these are normally complementary, as the former will usually require use of the sea as a highway to transport forces and then sustain them once ashore. The term 'usually' is used as recognition that some forms of sea power projection require little or no transportation before deployment or use. The most obvious example of this would be a submarine-launched ballistic missile (SLBM), such as the current Trident II D-5, which has a range of approximately 4600 miles. With such a range a Trident SSBN could theoretically project substantive levels of power as soon as it has left harbour (depending on where the target is based).

What forms of strategic power can be projected ashore? As noted earlier, sea power gives those who possess it a degree of flexibility in their axis of advance and place of attack. Sea power also has the potential for rapid disengagement. These attributes make sea power an ideal instrument for raids. History is replete with coastal raids, from Drake's success at Cadiz in 1587 to the failure at Dieppe in August 1942. At Cadiz, Drake destroyed approximately 33 Spanish vessels, delaying the planned Spanish invasion of Britain for a year.[28] Whereas, although Dieppe was a tactical failure, with 60 per cent casualties among the troops landed ashore, many valuable lessons were learned for

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future amphibious operations, including D-Day.[29] These two examples not only show the range of success and failure raids can produce, but also the varying objectives that raids can serve. Drake's was a spoiling attack on enemy forces, whereas Dieppe was an experiment to test the feasibility of amphibious raids against defended ports. In a general sense, raids gain much of their strategic value from the effects they have on the mind of an opposing commander. The sense of vulnerability over a wide area (coastline, for example) will likely compel an enemy commander to spread his forces more thinly, and/or divert resources into coastal fortifications. In addition, the enemy's decision making can be manipulated by the employment of small decoy raids, designed to distract the enemy's focus from the real event.

Raids are identifiable by their lack of permanence. By definition, forces engaged in a raid will at some point disengage having achieved their objectives (whether that be intelligence gathering or the destruction of a key target). In contrast, large amphibious assaults, although they have much in common with raids in the early stages of an operation, normally have much larger objectives. The greater ambition of an amphibious assault can be measured in time, objectives and forces engaged. Often, amphibious assaults seek to establish a permanent presence ashore, and indeed perhaps open up a new front entirely. D-Day and the Inchon landings in Korea both sought to establish new fronts and turn the tides of their respective wars. D-Day is notable not just because of its scale and success, but also for the impressive levels of jointery in the face of a well-defended coastline.

Box 8.3 **The Inchon landings**

In Korea, in September 1950, with United Nations troops barely holding on in the Pusan Perimeter, General Douglas McArthur proposed a risky and controversial amphibious attack on the defended port of Inchon. Despite the challenging geographic and tidal conditions, this bold maritime manoeuvre turned the tide of the Korean War. Within 11 days of the assault, United Nations forces had captured the South Korean capital, Seoul, and cut the supply lines of the northern forces attacking the Pusan Perimeter.[30]

Successfully landing troops ashore and establishing a secure beachhead in the face of a well-prepared enemy is a very challenging task. However, the very nature of maritime power makes success a possibility. Not only, as at D-Day, is the point of attack open to dispute, naval forces can also bring a range of capabilities to an operation. For example, during the Falklands War, British aircraft carriers were able to provide organic air cover for the amphibious landings. In addition to combat air cover, naval forces can also provide air-mobile troops to sow confusion and seize key objectives behind enemy lines. However, even taking into consideration such capabilities, amphibious assaults are risky affairs. Not only are the landing forces in danger of being pushed back into the sea, the amphibious ships themselves may be vulnerable from air attacks, submarines, mines, other surface vessels and coastal batteries. Despite these risks, as

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the Inchon landings reveal, amphibious assaults can produce outstanding success. The modern form of amphibious assault is codified in the US Marine Corps (USMC) concept of operational manoeuvre from the sea (OMFTS). As Till notes, OMFTS combines the traditional idea of amphibious with modern notions of manoeuvre, deep battle and operational art.[31]

In addition to delivering land power ashore, and often in support of such operations, naval forces can also project power in a very direct manner in the form of naval fire power. Historically, based as it was on naval artillery (naval gunfire support), naval fire power was largely limited to coastal areas. However, in the modern era air and missile attack have provided maritime forces with even greater range and capabilities. Such fire power can be used in support of other operations or can be used in isolation. In the former category, naval fire power can play an essential role in preliminary and ongoing bombardments in support of an amphibious operation. By necessity, amphibious forces have limited fire power when operating ashore. Thus, naval forces can provide important support by destroying key enemy capabilities and defences, or by limiting enemy resistance by the suppression of enemy forces. However, it should be noted that despite the levels of fire power available to navies, distant fire power can sometimes prove ineffective against well-prepared enemy positions, as the USA found during the Pacific War, when naval gunfire failed to neutralise Japanese bunkers.[32]

In isolation, naval fire power can be used to destroy important targets or to act as an instrument of coercion. In many recent conflicts, including Kosovo and the 1991 and 2003 Iraq wars, naval air and missile attacks have been used in support of coercive bombing campaigns. Although in these cases air force assets were also in evidence, there is nothing to prevent naval capabilities from being used alone. Indeed, in some circumstances, naval forces may be the only ones available. For the United Kingdom, with its lack of long-range bombers, carrier-borne air power or submarine-launched TLAMs are realistically the only option for global strike missions. Even for the United States, which has a long-range bomber capability, naval fire power could likewise be the only realistic option in certain contexts. Where in-theatre airfields are not available, carriers act as an offshore air base that can provide high sortie rates and rapid response, something that long-range bombers may not be able to achieve.

Coercion is not just achieved by the actual infliction of pain through the delivery of fire power. It is also about the threat of latent force. As noted earlier, with the ability to loiter offshore in international waters, combined with substantial fire power, naval forces are able to exert coercive effect by their ability to poise or maintain presence in an area for extended periods of time. Put simply, the deployment of a US carrier battle group into a region may be enough to affect the decision making of relevant actors. This can be achieved without the need for violence or any breach of sovereignty.

When one thinks of deterrence, one's mind immediately turns to nuclear weapons. For those who can afford and acquire such a capability, SLBMs have become a mainstay of nuclear force structures. Nuclear weapon submarines (SSBNs) are well suited to a second strike role due to a combination of their technical features and the nature of the submarine environment. Taken together, these provide SSBNs with impressive stealth capability. They also complicate notions of sea control. Indeed, one could argue that an SSBN has control of the sea somewhat built in; at least in terms of being able

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to use the sea for one's own purposes. It is not impossible to track and target a modern SSBN, but it is certainly very challenging. The sea control implications of this are interesting. For example, Country A may have a workable control of the sea on the surface, to the point that it is able to operate while the enemy is not. However, Country B may have an SSBN force that is able to operate with relative impunity in the submarine environment. Thus, and assuming that neither the surface fleet nor submarine fleet is able or willing to engage with one another, command of the sea can be shared by both countries, albeit operating at different depths.

Ideally, a country with nuclear weapons would have a range of different delivery methods (the nuclear triad). However, if this is not feasible, and only one method has to be chosen for a global power, SLBMs are probably the best bet. Due to their relatively secure status and global manoeuvre capability, an SSBN force provides a relatively reliable and flexible nuclear capability. This appears to be the thinking behind the United Kingdom's decision to base all its nuclear weapons in its SSBN force.

Much of the transportation role of sea power is obvious and self-explanatory, but crucial nonetheless. The movements of troops and supplies are important maritime tasks that normally require some form of sea control. However, there are tasks in this category that can be performed without the requirement to establish sea control first. For example, the insertion of special forces, either by surface vessel or submarine, may be achieved even in the face of substantive levels of enemy sea control. Similarly, as noted earlier, 'sneaking' through an enemy blockade may enable the transportation of key resources, including the safe passage of people. Transportation tasks can also include the extraction of nationals from dangerous environments, or indeed the mass evacuation of forces from hostile terrain. The most notable example of the latter was the successful evacuation of over 300,000 British and French troops from the beaches of Dunkirk in May/June 1940. On this occasion, maritime power provided the only route to safety for these troops in the face of the seemingly unstoppable German forces.

Beyond power projection and transportation, maritime power can perform a range of miscellaneous tasks in support of national policy. There are too many to examine them all in detail, but noteworthy among these roles are humanitarian tasks, good order at sea and naval diplomacy. Clearly, not all of these roles require sea control in the face of an enemy, although they do require the ability to use the sea. Humanitarian operations, for example, are often undertaken with the support and aid of various countries, with no hint of sea denial. However, as the Bosnian War and US operations in Somalia indicate, there are occasions in which actors in a region may seek to interfere with humanitarian relief efforts. It is not implausible that future humanitarian efforts with a large maritime contingent may require the establishment and maintenance of sea control. Whether sea control is required or not, it is clear that naval forces are well suited to humanitarian tasks. Among a wide range of tasks they can perform, maritime forces can transport large quantities of aid to affected areas, evacuate large numbers of civilians, and provide floating medical facilities. However, if they are not close to the affected areas, their relatively slow speed of travel may prevent maritime forces from making a crucial difference in the immediate aftermath of a disaster.

As noted earlier, the world's oceans contain vast deposits of natural resources and act as essential arteries for global trade. Unsurprisingly, this same global highway is used

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for nefarious activities as well. As a result, maintaining good order at sea is an important task for modern maritime forces. The range of activities performed includes dealing with piracy (which will be discussed in detail later), counternarcotics, and protecting shipping in danger from regional conflicts. A significant example of the last is the naval patrols undertaken to protect merchant shipping during the Iran/Iraq War in the 1980s. An interesting mission that can be placed under the umbrella of good order at sea is embargo enforcement. During a conflict, or in response to unacceptable actions and policies, international actors may seek to enforce an embargo against a state or group of states in a region. Often, an important but challenging component of embargo enforcement is monitoring and intercepting shipping. This task is normally complicated by the fact that certain goods (humanitarian aid) are permitted into the target state, but others (weapons) are strictly prohibited. The challenges of this form of operation are well illustrated by the deaths of nine crew members on a Turkish aid ship that was intercepted and boarded by Israeli commandos in June 2010. At the time Israel was enforcing a blockade against Hamas-controlled Gaza to prevent the delivery of weapons. In contrast to humanitarian operations, many of the good order at sea activities have a strong sea control dimension. Counternarcotics, anti-piracy and embargo enforcement operations are all concerned with controlling use of the sea to promote 'our' positive uses (legitimate trade, etc.) and prevent the nefarious activities of 'others'.

Naval diplomacy is yet another subject that is fraught with definitional problems. The problems stem largely from confused notions about what constitutes war, and how we understand and codify military activities short of all-out war. The most common mistake made is to concentrate on the difference between war and other military activities such as coercion and deterrence. This creates a false dichotomy in which the direct use of force, most particularly warfighting, is disassociated from other military activities involving the threat of force. Such a misunderstanding has the potential to result in a disjointed, non-unified and incoherent concept of strategy. The end result of this problematic approach is a rather unhelpfully broad concept of naval diplomacy, which encompasses acts of coercion and deterrence as well as intelligence-gathering activities.

Rather than focusing on the difference between war and so-called 'acts short of war', the theorist and practitioner should rather focus on strategy: the process of converting military force (including the threat of force) into policy effect. With strategy as the focus, all military activities that relate to the fighting potential of forces (including war, general displays of force, and coercion based on the presence of naval forces) can be considered together along a spectrum. Such an approach is in tune with Clausewitz's theory, which notes that even when battle does not occur, the outcome is decided on an approximation of what would have occurred had battle taken place.[33] In this respect, battle is the key variable in an equation concerning the relative balance of forces and capabilities.

By correctly reconnecting activities based on the threat of force with the actual use of force (including war), this leaves us with a far narrower, but more credible notion of naval diplomacy (one that does not include coercion). Thus, naval diplomacy is restricted to such activities as port visits and coalition-building actions. Naval diplomacy can therefore be defined as the use of naval assets to help grease the wheels of diplomacy, but in a manner that does not involve the use or threat of force. Of course,

a port visit can fulfil multiple objectives simultaneously. A ship in port can be a demonstration of power, which at some level has a coercive or deterrent effect, and at the same time merely be used as a venue to foster greater diplomatic ties. In this sense, it should be noted that naval diplomacy is certainly an aspect of grand strategy, but not strategy. Understanding the boundaries of naval diplomacy is important because naval diplomacy activities, as defined here, do not really have a sea control dimension or requirement. Whereas the coercive use of naval force may.

Under this narrower definition, intelligence gathering, or what Till describes as picture building, would also not be included under the heading of naval diplomacy.[34] If said intelligence activities were purely in support of military operations, they would come under the rubric of military strategy, as a support function. In contrast, if they were being used for general intelligence gathering they would be fed into the central intelligence machinery, and would therefore be most accurately described as intelligence operations. This conceptual delineation of intelligence tasks is supported by the structure of the intelligence communities in both the USA and UK. In both of these countries, intelligence gathered by military assets can be fed into the central intelligence machinery or, if the intelligence is strictly military in nature, can be processed and used within the remit of the Pentagon or Ministry of Defence.

This discussion supports the aforementioned notion that sea power is a flexible instrument of strategy, and is most potent when used to project power and influence ashore. For many naval activities, some form of sea control is required. Most often, the extent of sea control required will be limited in both time and space. However, it has been demonstrated that certain actions, especially those that come under the heading of naval diplomacy and good order at sea, do not always rely on the establishment of sea control. Thus, we can conclude that sea control is still of central importance to sea power, but is not always necessary.

The leverage of sea power[35]

The utility of sea power has thus been established. But, how important is it in the practice of strategy? Does sea power win wars and enable the achievement of policy objectives? These perfectly valid questions almost pose themselves in response to some of the great works of maritime theory. This is most obviously the case in relation to Mahan's *The Influence of Sea Power on History*. This subject also leads us into the interesting but somewhat abstract world of geopolitics. The contest between great continental powers and their maritime equivalents is the domain of great struggles in history and broad brush strokes across maps. As with much in sea power, Mahan is our first port of call. Although Till is quite correct to note that Mahan understood that a nation's power was not based solely on maritime resources, the American theorist did attribute much influence to sea power.[36] For Mahan, maritime trade was the primary basis of a nation's power. That being the case, control of the oceans (via naval forces) on which said trade operated was the primary route to success or failure in world politics.

The notion that sea power had dominance in international politics has been challenged in the modern era (twentieth century) by writers such as the great geopolitical thinker Halford MacKinder, whose theories were later supported by the maritime

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historian Paul Kennedy. Writing in the early years of the twentieth century, MacKinder theorised that the period of maritime dominance, which he labelled the Columbian Era (c.1500–1900), was coming to an end. The decline of sea power would be the result of new and developing transportation technology on land. MacKinder theorised that motorised land transport would facilitate a substantial increase in the ability of continental powers to exploit their mineral and industrial resources, and hence enhance their power. In effect, one of the defining characteristics of sea power, efficient transportation, was being equalled or overtaken by developments in land power.[37]

Such views, however, are not universally accepted in modern strategy. In his influential work *The Leverage of Sea Power*, Gray argues that the Columbian Era has been indefinitely extended. To support this argument, Gray cites the examples of the Second World War, the Cold War, and, to a lesser extent, the First World War, as proof that sea power is still a powerful enabler of victory in great conflicts. In each of these conflicts maritime-based alliances were able to gather and exploit their global resources in order to outlast and overawe their continental foes. In such protracted conflicts maritime-dependent resources could be translated into continental power, which was used to defeat continental foes on their own ground. Crucially, the continental powers were not able to do likewise and defeat their maritime opponents on the oceans. Importantly, however, Gray reminds us that sea power does not produce victory independently in most cases; rather it acts as a crucial enabler for the accumulation and expression of dispersed land power.[38]

An important aspect of Gray's explanation for the continued dominance of sea power is its ability to adapt to, and coopt, new technology. Rather than being replaced by air power, nuclear weapons or cyberpower, sea power has often been at the forefront of integrating these new developments. This can be seen clearly by the early development of aircraft carriers. The first of these new ships appeared as early as 1913, when the light cruiser HMS Hermes was converted to launch and recover seaplanes.

The strategic utility of sea power is not just dependent on its ability to enable great conflicts to be won. Corbett reminds us that maritime power has great utility for the policymaker due to its suitability for limited conflicts.[39] As noted earlier, in some respects sea power is a more controllable, less escalatory form of strategic power. In this sense, it may give a policymaker the flexibility he requires, while at the same time providing enough power to do the job.

Most importantly, Corbett is noted for his logical claim that sea power must exert leverage ashore to be successful in a strategic sense. This idea sits comfortably with Wylie's oft-quoted pronouncement that strategy is about control, and control is achieved ultimately by the man on the scene with a gun. Although sea power can coerce or deter without help from the other services, it is most potent when used in a joint environment. In the first instance, sea power makes an overall contribution through the medium of global maritime trade, which is instrumental in providing the economic basis that underpins a state's military power. More specifically in support of a joint venture, it is entirely possible that naval forces will transport ground forces into theatre; sustain them with logistical support; provide fire power and cover with organic air and missile forces; and, ultimately, extract ground forces when the objectives have been achieved. In this sense, sea power may be the foundation on which a joint campaign is built.

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Contemporary and future sea power

Although the logic of war never changes, as Clausewitz reminds us, its grammar is a constantly changing and evolving phenomenon.[40] The twenty-first century is already shaping up to be a period of continuing and significant change. From a geostrategic perspective, although the War on Terror continues to substantially define the global security environment, a resurgent Russia, nuclear-armed Iran or empowered China could dramatically alter this situation. However, smaller scale threats to maritime power will continue to exist; most notably, piracy. From a technological standpoint, the information age continues to influence the development of military capabilities. In turn, this physical manifestation of change has spawned ever more dramatic outpourings in the professional literature and from doctrine centres. The final section of this chapter will explore how sea power will adapt to this evolving environment.

As noted previously, due to the environment in which they operate, 'navies are material services.'[41] In such a platform-centric activity, technology really matters. Perhaps the most significant question for future navies in this respect is the fate of the 'great or capital ship'. Certain periods in maritime history have been dominated by particular types of vessel. These vessels were regarded as the most important and powerful vessels of their day, on which the fate of fleets and nations could rest. Examples of capital ships include First Rate Ships of the Line during the Age of Sail, dreadnought battleships, and aircraft carriers in the contemporary setting. However, the continued prominence of large, powerful great ships is open to question. On the one hand, Till reports that in general warships are getting larger, more expensive and fewer in number. This can be explained by a number of factors. Larger vessels can be made more resilient; they can be more flexible by virtue of being able to house a greater range of capabilities; and finally, with an emphasis on modular ship design, their primary role can change during the ship's operational lifespan.[42]

On the other hand, there is the approach enabled by the proliferation of information technology. Specifically, the rise of network command and control structures suggests a future in which power is distributed rather than concentrated. In a shared information environment, many smaller vessels could coordinate their capabilities, massing effect rather than massing force. One significant advantage of this approach is the ability to do away with the great ship, which is an extremely valuable but also vulnerable asset. However, one might argue that the network itself, on which the entire fleet would rely, is another potentially vulnerable target.

One overriding problem of the extreme network approach is that it tends to focus on warfighting and the delivery of fire power. As already noted, the great strength, and indeed requirement of naval forces is their ability to perform a range of tasks, both in and out of conflict. Substantial amphibious assaults or large humanitarian operations are likely to require large vessels capable of operating in a complex and often dangerous environment. A great ship is arguably more capable of self-sustaining action in this respect. Networks are undoubtedly having an impact on the structure and composition of modern armed forces. In addition, exploiting a networked approach can confer substantial advantages. However, the rise of the network does not fundamentally change the nature of maritime operations. Hence, large, flexible vessels are likely to remain in operation.

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When considering doctrinal and theoretical writings on contemporary sea power, the new maritime strategy of the United States is a key document. When viewing this document it quickly becomes apparent how important the aforementioned concept of flexibility is.[43] Another concept that is conspicuous in this document, as well as much discussion of maritime strategy in the west, is expeditionary operations. These military operations tend to be undertaken in isolation, rather than as an amphibious operation in support of a larger campaign. Indeed, they are more suited to limited acts of warfighting (Falklands War), coercion, or other actions such as peace support missions. Expeditionary operations are normally limited in both objectives and time, and are undertaken by self-sustaining units. Although certainly not a new form of maritime capability, the current focus on expeditionary operations is entirely sensible, since it fits the contemporary security environment, as well as playing to the strengths of naval forces. In particular, the ability to engage and disengage relatively easily is important for western policymakers, who may often feel compelled to 'do something', but may not have host nation support, and also fear protracted ground-based entanglements.

However, as Till reminds us, expeditionary operations need to be taken seriously. Putting them together on an ad hoc basis, with ill-suited capabilities and planning, can raise the costs of the operations substantially. The dangers of this are evident in the British losses suffered during the Falklands War. Among the many factors that must be considered when preparing an expeditionary capability, the following appear prominent: logistics, force protection, fire power, flexibility and escalation dominance.[44] The first of these is fairly self-evident, in that the capability must exist to transport sufficient forces into theatre and subsequently maintain them. Force protection is especially crucial in expeditionary operations, as these missions often occur in hostile littoral environments. Fire power should exist in sufficient quantities, either to provide fire support to ground forces ashore, or to undertake acts of coercion and deterrence. Since the character of expeditionary operations can often change fairly rapidly, a range of capabilities is important to endow the maritime force with operational flexibility. Related to the potential for changes in the operational environment, an expeditionary force should have a degree of escalation dominance built in. An expeditionary force should not engage in a situation with a very limited, one-dimensional form of power. To achieve the objective, the degree of force used may have to rise substantially and rapidly. Even if the conflict escalates to such a point that disengagement is required, an expeditionary force still needs sufficient capability to make a fighting withdrawal. All of these, and other considerations, inevitably have substantial implications for procurement. To cite just one example, if the United Kingdom wishes to maintain a decent expeditionary capability, it must proceed with the procurement of the two promised carriers and the attendant aircraft.[45]

In many important respects, the new US maritime strategy is a document of its time. In addition to the continued prominence of power projection, it has an increased emphasis on soft power, including a particular focus on coalition building, humanitarian operations and disaster relief. Indeed, Hughes welcomes its overdue emphasis on small wars and the constabulary role of sea power.[46] Certainly, many of the great buzzwords and concepts of the modern security dialogue have a secure place in the new maritime strategy. Globalisation, complexity, climate change, transnational threats, non-state

actors, and more, are all evident in the document. While this more comprehensive approach is to be welcomed as a recognition of the current security environment and the flexibility of modern sea power, Till bemoans the absence of explicit mention of amphibious assault and strike operations.[47] Perhaps Hughes is correct when he states that the new strategy is less for war and more for peacemaking.[48] It may be that US maritime forces, as is often the case with governments and their instruments of power, are too focused on the current security environment, rather than on timeless capabilities and roles. Nonetheless, the new strategy does contain recognition of the need for the retention of capabilities to win or deter major wars. The document is also to be congratulated for its encompassing sea service approach. This is the first maritime strategy to have been produced jointly by the navy, coast guard and marine corps.

However, the all-encompassing nature of the new strategy has led some commentators to dismiss it as vision rather than strategy. Pendley comments that by trying to be all things to all people, the new strategy lacks focus and realism. Indeed, he even criticises the all-service approach by stating that each service has distinct needs and missions that cannot be brought together so easily in one strategy.[49]

What is certainly laudable in the new strategy is the refocusing on sea power in US national security policy. The global and expeditionary nature of maritime power provides the USA with an important and flexible instrument to deal with the complex global security environment. And as Rubel, who was involved in the drafting of the new strategy, indicates, the more positive aspects of sea power are well suited to the new security threats and policy objectives. This is particularly the case with coalition operations. There is recognition that current security threats require international cooperation, especially in the field of protecting free use of the seas for trade and transportation.[50] While this positive, international approach to maritime security is laudable and fitting to many of the current security threats, the force structure and military culture implications have to be carefully monitored. The document contains no direct reference to any potential state competitor. Explicitly refusing to identify any nation-based threats for which to plan against, so as to avoid the security dilemma, may hinder force structure and planning measures for future conflict, and may lead to a degradation of warfighting capacity, both physically and in a cultural sense. Maintaining the ability to aggressively assert sea control has to remain a central capability and requirement for US maritime forces. Positive peacetime security operations may need to be replaced or supported by an aggressive wartime stance in a relatively short time span.

Thankfully, although missing from the most recent doctrine, the concept of a nation-based peer competitor threat is being maintained in the professional literature. A survey of maritime journals, such as the *Naval War College Review*, finds China very much at the heart of many discussions of contemporary and near-term security issues. This is not to say that China and the United States are on an inevitable crash course towards conflict. Rather, it is a sensible assessment of geostrategic and military developments in the coming decades. Just as an increasingly powerful Japan faced the United States across the Pacific in the interwar period, so now China represents the growing naval power in the region. Hopefully, both the United States and China will solve any potential clashes of interest through peaceful channels. This is an entirely plausible future. However, from the perspective of US maritime strategy, it is sensible to use China as a

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benchmark for future maritime capabilities and operations. If the USA maintains the naval capability to deter, coerce or fight the Chinese on favourable terms, it will be well placed to deal with any other substantial maritime threats. This author tends to be of the opinion that it is better to have a warfighting force that is capable of adjusting to peacemaking operations than the opposite. This is especially the case with naval forces, based as they are on large, flexible fighting platforms.

Alongside China, another security issue that rightly attracts attention in the professional literature is piracy. This is not surprising given the rise in incidents in recent years. In the period 1993–2005, pirate attacks on shipping rose by 168 per cent.[51] Although piracy is a global problem, certain regions suffer from a greater intensity of attacks. Usually, the regions in question suffer from economic and political instability. The Malacca Straits used to be a hotbed of pirate activity. However, in recent years the Horn of Africa has become the focus of the problem. In 2009 217 attacks, more than half the global total for that year, occurred in or originated from this region. In addition to this increase in intensity, pirates are operating further from their bases. Pirates based on the Somali coast are now operating over 1000 miles from their bases.[52] The financial costs of pirate attacks on shipping are small relative to the value of global maritime trade. For example, although 217 attacks in the Gulf of Aden seems a significant figure, it represents fewer than 1 per cent of the ships travelling through the Gulf in 2009. Nonetheless, the fear of piracy can have substantial disruptive effects on maritime trade and the local economies that rely on it. In addition, the ransoms being paid for the release of ships and crew held by pirates have risen dramatically in recent years. It is not uncommon for ransoms amounting to millions of dollars to be paid.[53]

Despite the rise in piracy in recent years, as a maritime security issue it can be, and has been, addressed quite successfully. For example, in 2000 there were 75 reported attacks in the Malacca Straits. By 2008 this had fallen dramatically to just one successful attack and three unsuccessful ones. How can we account for such a dramatic turnaround? Catherine Zara Raymond identifies the development of joint anti-piracy measures by Malaysia, Singapore and Indonesia as the key to understanding the improved security situation. However, there is also recognition that the 2004/5 tsunami had a role to play, since many of the pirate bases were located in the badly affected Aceh region of Indonesia. As Raymond hints at, in all probability it was a combination of these factors that helped reduce and contain piracy in the region.[54] The literature on anti-piracy, in tune with US policy on the issue, suggests that a number of measures are required to operate simultaneously. These include naval patrols, seizing or freezing pirate finances, and developing increased defences for merchant ships. However, while these are all important and necessary, it is generally accepted that the problem can only really be solved on land. The social, economic and political issues on land must be addressed to reduce the need for many to turn to piracy as a source of income. Therefore, we can conclude that maritime initiatives, many of which need to be international in nature, are important in containing the pirate problem. However, as always it is the human dimension that must be addressed to achieve a long-term solution.

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Conclusion

Those involved in contemporary sea power face a range of developing challenges. At present, the maritime security environment is complex, with threats and missions ranging from piracy to humanitarian relief. In addition, there is much uncertainty concerning the future development of naval vessels. Will the capital ship continue to exist in some form, or will networks lead to the distribution of power among many smaller vessels? This complexity could be intensified with the arrival of a peer competitor to the United States. In order to deal with said complexity and the uncertain direction of future sea power, there is much to recommend holding onto established concepts and classic theoretical writings.

In this respect, although there is much value to be gained from an appreciation of the entire range of maritime activities, the more narrow definition of sea power provides greater conceptual clarity. Restricting one's analysis to the use of military naval assets for the attainment of policy objectives ensures clear strategic focus. As important as merchant shipping and maritime insurance may be, the strategist needs to concentrate on naval forces and the contribution they can make to national security policy. It is also important not to overthink or unnecessarily delineate the functions of sea power. The key variable in defining an act of strategy is violence. Military force, whether in actual use or merely threatened, is the basis for strategy. This includes acts of coercion or intelligence gathering in support of operations. Humanitarian operations and naval diplomacy, although they make use of naval vessels, belong to a different category of missions as they do not rely on the application of violence to achieve effect. They are still an expression of sea power, just not an act of strategy.

As an instrument of policy, sea power is characterised by a range of missions, global reach and great flexibility. Often central to the success of sea power is sea control. Total command of the sea, however much desired, is neither realistically possible nor necessary. To achieve positive strategic effect, a maritime power need only attain control of the sea over a certain area for a certain period of time. Indeed, attempting to gain total command of the sea may be a waste of vital resources and may prevent proper exploitation of sea control. The latter is not an end in itself, but rather must be exploited to have value. As Corbett notes, in some way or another, that exploitation must affect change on the land environment. Sea power is only useful inasmuch as it extends its influence to land, where humans dwell.

It should be clear from this analysis that sea power is an extremely useful instrument in strategy. But just how influential is it in world politics? The history of geopolitics suggests that nations and coalitions built around sea power have tended to prevail in large conflicts in the modern period. This is largely due to the ability of maritime power to gather together resources on a global scale. However, the outcome of wars is dependent on so many variables that it would be unwise to extrapolate too much from recent geopolitical history. What can be said with more confidence is that the role of sea power is primarily that of an enabler to land power. Nonetheless, with its ability to integrate new technology and adapt to changes in the grammar of war, sea power is likely to continue to play an important role in deciding the outcome of future security challenges.

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Key points

1. 'Sea power' provides a limited but more viable definition of strategy at or from the sea.
2. 'Control of the sea' denotes a more realistic, limited notion of command of the sea.
3. Defeat of the enemy will remain an important component of sea power operations.
4. Sea power is a flexible instrument of strategy.
5. In the modern era, maritime-based alliances have tended to succeed over continental enemies.
6. Despite the rise of networks, sea power is likely to remain platform centric.

Questions

1. **Is command of the sea possible?**
2. **How significant is battle in acquiring command or control of the sea?**
3. **What are the main advantages and limitations of sea power?**
4. **Will modern sea power change significantly from that which went before?**

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9 Air power

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Reader's guide: The advantages of air power; the limitations of air power; the historical development of air power: First World War, interwar theory, Second World War, modern air power; air power as a flexible strategic instrument, best used in support.

Introduction

As far as military innovations go, air power must be regarded as one of the most genuine and significant. It seems reasonable to argue that the exploitation of heavy than air aircraft in the twentieth century changed the character of warfare in a lasting fashion. Almost every conflict is now influenced, to a greater or lesser degree, by air power. Indeed, as Field Marshal Montgomery noted, the outcome of certain conflicts will be largely determined by who controls the skies: 'If we lose the war in the air we lose the war and lose it quickly.'[1] Nonetheless, it would be a mistake to assume that air power has become the decisive instrument in modern warfare. As noted in the Introduction to this book, strategy is a complex, multidimensional activity. That being the case, to identify any one factor as being decisive is an oversimplification. In light of this, the current chapter seeks to analyse the development of air power, its strengths and weaknesses, and determine its role in the current strategic environment.

Like every other geographic dimension of strategy, the air environment presents a unique set of opportunities and challenges. Like the sea, the air environment is hostile for human beings. Thus, in order to exploit the air environment for strategic effect humans require vehicles in order to survive in, and traverse, the third dimension. Inevitably, this means that air strategy is platform centric. Depending on circumstances, small differences in technical specifications can make a big difference at the tactical and operational levels. In air-to-air combat, for example, having more advanced avionics and weapons systems relative to the enemy will likely result in victory. Once decent platforms have been acquired, air power proves to be a surprisingly flexible instrument of strategy. Most obviously, aircraft can be used in combat, either to counter other aircraft or to attack surface targets (including military forces, infrastructure and populations). They also have prominent roles in reconnaissance and logistics. These various uses of air power will be explored in greater detail as the chapter develops.

The advantages of air power

Box 9.1 **The advantages and limitations of air power**

Advantages

Speed of movement
Multiple axis of advance
Overhead flank
Flexibility
Strategic effect without commitment
Cutting-edge technology

Limitations

Inability to control the ground
Fleeting presence
Expensive
Vulnerable to the weather
Tendency to alienate locals

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Operating in the third dimension has a number of advantages. Aircraft can usually reach their intended destination much more quickly than other forms of transport. Thus, the use of air power may be critical for mission success in certain circumstances. The interdiction of an enemy convoy; urgent resupply or redeployment; or casualty evacuation are just three examples of when speed may be a crucial factor. Due to the lack of physical obstacles, air power also offers multiple axes of advance and attack. And, with in-flight refuelling, aircraft potentially have global reach. This is unlike the land environment, where physical characteristics of the terrain shape operations significantly. Similarly, although less obviously, the maritime environment also contains features (such as land or depth of water) that may limit the geographic extent of operations. In contrast, the air environment is fairly uniform in nature. This is not to overlook the fact that certain climates are more favourable than others for aircraft. Neither can one overlook the fact that national airspace imposes an artificial limit on the extent of air travel. However, the latter consideration will often be ignored during military confrontations. Finally, it is worth noting that operations involving helicopters may be affected by undulations in the terrain below. Nonetheless, generally speaking, those conducting air operations have greater freedom when planning routes to target. This clearly creates significant problems for those on the receiving end of an air campaign.

Rather obviously, air power gives its user the advantage of operating on the overhead flank. Being able to bypass enemy forces on the ground (assuming that anti-air defences are not especially effective) enables a force using air power to attack targets deep in the enemy's rear. Indeed, the promise of strategic bombing was largely based on the ability to attack enemy centres of population and industry, without first defeating the

enemy's ground forces. The overhead flank also acts as the ultimate highground for reconnaissance. The Duke of Wellington noted that a significant part of warfare was concerned with discovering what was over the hill.[2] Air power enables one to do that over a very large area. However, as with most aspects of strategy, this is not a one-sided affair. Enemy forces can hide from air-based reconnaissance assets. And, as was amply demonstrated in Kosovo, even the most modern of air- and spaced-based reconnaissance assets can be deceived by those on the ground.[3]

Although common perceptions of air power may be dominated by advanced fighters and bombers, air power is actually a very flexible instrument of strategy. However, in our haste to highlight said flexibility we should not underestimate the significant contribution air power makes in the projection of fire power. For example, a B-2 bomber has a payload of 40,000lb. This can accommodate various configurations of weapons, including 80 500lb JDAM guided bombs.[4] As will be discussed in detail later in this chapter (in relation to the bombing campaigns against Germany and Japan during the Second World War), strategists can harness the enormous fire power offered by air power to make a significant contribution via attacks against industrial and population centres. Related to this is the use of air power for coercive effect. Modern air power in particular, due to advances in precision munitions, is often regarded as an ideal coercive instrument. In theory, a modern air campaign can attack key targets (nodes) in the enemy system, thereby breaking his cohesion and will. The 1999 war in Kosovo is a controversial case of a coercive air power campaign. Some commentators and practitioners have claimed that air power alone compelled the Serbian government to accede to NATO's demands.[5] However, as will be discussed later, this is a contested claim. Over the battlefield, fighter bombers and helicopters have the ability to inflict significant damage on (depending on factors such as the weather and anti-aircraft defences) infantry and armour, as witnessed in the 1991 Gulf War.

Beyond the delivery of fire power, aircraft play a significant role in logistics. Although limited in what they can carry relative to sea transport, aircraft are able to deploy or resupply more rapidly. There are circumstances in which air transportation is the only viable option. The most striking example of this is the 1948–49 Berlin Airlift, when Allied aircraft supplied the city of Berlin, which was isolated in Soviet occupied East Germany, with approximately 13,000 tons of supplies a day.[6]

Aircraft not only transport equipment and supplies, they can also project military power through the use of air-mobile and airborne forces. The former refers primarily to the movement of forces via helicopters. A fine example of the advantages of air mobility can be seen in the battle for Ia Drang Valley (November 1965) during the Vietnam War. In the dense wooded terrain of South Vietnam, air mobility enabled US air cavalry forces to engage the North Vietnamese forces at Ia Drang. Helicopters were used exclusively to deploy forces onto the battlefield, maintain them, and evacuate casualties.[7] Although air-mobile troops are strictly speaking classified as airborne forces, the latter normally refers to parachute troops dropped from fixed-wing aircraft. Airborne forces had their heyday during the Second World War (in such operations as the capture of Eben Emel and Crete), although they are still occasionally used (as in the capture of airfields in Afghanistan and Iraq).

Aside from being flexible, air power benefits from being able to provide strategic

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effect without the need for presence on the ground. In certain circumstances, the deployment of ground troops could create substantial political problems. For example, the deployment of ground forces may stimulate public and international outcry at what is perceived as the 'invasion' of a sovereign state. Also, the deployment of ground troops normally increases the risk of friendly casualties. This too could have serious political ramifications at home. In contrast, theoretically at least, air power is able to deliver strategic results with a fleeting overhead presence, thereby reducing the political costs and minimising the chance of friendly losses. As Eliot Cohen notes, this makes air power a particularly attractive instrument for policymakers: 'Air power is an unusually seductive form of military strength, in part because, like modern courtship, it appears to offer gratification without commitment.'[8] If it can be attained, control from the air is potentially a more efficient form of control. During the interwar period Britain relied on the newly formed Royal Air Force (RAF) to control vast tracts of land in its imperial possessions (in modern-day Iraq, for example).[9]

Aircraft are often at the forefront of developments in military technology. Hence, air power may be perceived as a measure of a state's development, status and power. This, allied to the aforementioned fire power, suggests that air power can be used as a display of military power in order to exert leverage. During the British involvement in Sierra Leone, the mere presence of Harrier jets overhead could subdue militants for periods of time.[10] The deployment of an aircraft carrier and the attendant battle group can be a potent signal of intent. The strategic effect in such circumstances is related strongly to the latent power of carrier-borne aircraft.

Overall, air power appears to be an extremely useful instrument of strategy. It has many uses, is largely unrestrained by geography, is rapid in its execution, and is able to project substantial levels of fire power. In addition, it is potentially far less vulnerable than other forms of military power, and less controversial as a result. However, the weaknesses of air power are just as noteworthy as these advantages.

The weaknesses of air power

Ironically, one of the more obvious weaknesses of air power relates to one of the aforementioned strengths: lack of physical presence on the ground. Reluctance by a state to deploy ground forces may be an indication of a lack of genuine commitment to a security situation. That being the case, an enemy may be able to sit out an air campaign, working on the assumption that the (already questionable) will of the enemy may weaken further over time. This appears to have been Serbia's chosen strategy during the Kosovo conflict. However, as this example reveals, those conducting an air campaign may show surprising levels of commitment over a prolonged period. Nonetheless, a lack of boots on the ground has other disadvantages. Control from the air is a poor substitute for the man on the scene with a gun. An enemy on the ground can conduct a deception campaign, or adopt a form of warfare (irregular, small unit) that is difficult for air power to cope with. Once again Kosovo presents us with a striking example of this truism. Although the NATO campaign was ultimately successful in forcing the withdrawal of Serbian forces, an estimated 10,000 Albanians died after the campaign had started. This was mainly because Serbia was able to conduct its ethnic cleansing

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campaign using small irregular units, which were difficult targets for NATO pilots.[11]

This suggests that as flexible as air power may be, it lacks the versatility of ground forces. The latter can not only fight and provide physical security, they can also be used in support of development projects. In some operations, such as counterinsurgency, interaction with the local population is vital. The required face-to-face human interaction is only really possible with dismounted infantry. Not only is air power distant and lacking in human interaction, the fire power it can deliver may be an alienating factor. Put simply, the local population may regard those using air power as abstract bringers of death and destruction, rather than someone with whom they share a sense of humanity. In defence of air power, it should be noted that aircraft may be a welcome presence when they bring vital supplies, such as food and medical aid. Also, it is worth noting that although flexible, infantry forces can still alienate the local population with the misuse of deadly force or simply by showing cultural insensitivity. In the final analysis, as with any instrument of strategy, the use of air power must be carefully moulded to the specific needs of the situation. However, it still needs to be recognised that certain situations may be ill suited to air power.

Air power is an exceptionally expensive form of military power. This is especially the case with combat aircraft. The B-2 bomber costs approximately $2 billion per unit. Although this is an unusually high unit cost (partially due to the small numbers produced), the RAF's main fighter bomber, Eurofighter, still costs approximately $58 million each. Air-launched munitions can also be expensive. The GBU-22 Paveway III air-ground bomb, used on Eurofighter, has a production cost of approximately $50,000. Thus, air power is a very expensive means to deliver high explosives to a target. And as indicated by the Kosovo conflict, the efficacy of this expensive instrument can be seriously degraded by air defences and simple cost-effective acts of deception. However, political and military leaders may feel that the costs of air power are justified, since it can reduce the chances of friendly casualties relative to the deployment of ground forces. It should also be noted that air power is on the verge of becoming a significantly less expensive instrument. Most of an aircraft's cost relates to the presence of a human being in the cockpit. Keeping the pilot alive and in control of a modern aircraft is not only costly, it also restricts the performance of the platform. Since humans are limited in the amount of g-force they can withstand, the manoeuvrability and speed of aircraft is consequently limited. The increasing use and development of unmanned aircraft is therefore reducing the cost of air power, and may eventually lead to more agile aircraft. A Predator UAV has a production unit cost of approximately $4.5 million.

As noted in passing earlier, weather still has the potential to seriously disrupt an air power campaign. As is described later in this chapter, the flow of the Battle of the Bulge during the Second World War was substantially influenced by the weather and its impact on the ability of air power to function. Although it is true that modern air power is better able to overcome the effects of the weather, the 1999 Kosovo conflict provides striking evidence of how significant this factor still is in the exercise of strategy in the third dimension.

As with any form of military power, air power has distinct advantages and limitations. It is capable of undertaking a range of different missions but its strategic efficacy will depend on a range of factors, including the nature of the enemy, terrain and the

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objectives set. In order to accentuate the positives and minimise the negatives, air power is best used in coordination with other strategic instruments.

Historical development

Box 9.2 **The main uses of air power**

Close air support (CAS)
Strategic bombing
Coercion
Nuclear deterrence
Reconnaissance
Airborne forces
Logistics

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The First World War

Although air power appears to be a very modern instrument, typified by Eurofighter and stealth bombers, most of the roles we associate with it today were present (either in practice or in theory) during its first serious military outing in the First World War. Strategic bombing, reconnaissance, interdiction, close air support and aircraft carriers, to name but five roles, were all developed substantially between 1914 and 1918. During the First World War the pioneers of air power were learning as they went along. Doctrine and technology developed at a rapid pace as military commanders began to understand what this new tool was capable of.[12]

The first notable use of air power during the war was reconnaissance. This was not an entirely new use of air power, however. Balloons had been used for this purpose since at least the Napoleonic Wars. Nonetheless, the invention of heavier than air flight gave air reconnaissance assets much greater flexibility, control and range. This is not to say that balloons did not continue to have a role in this respect. The static character of trench warfare ensured that tethered balloons could still provide useful coverage of the enemy's positions. In the early stages of the war the air reconnaissance assets of each side did not interfere with their opposite numbers. However, this soon changed, and dedicated fighter aircraft were developed to intercept enemy reconnaissance aircraft. Inevitably, over time these fighters began to engage one another in order to gain control of the skies. In these early days of development we witness the beginnings of the rapid race for technological advantage. The airframes of fighters were developed to make them more agile, and their armaments continued to evolve. At first, air-to-air combat was limited to pilots firing revolvers from their cockpits. However, it was not long before armaments were attached to the aircraft themselves. Eventually the Fokker Eindekker went into battle with a sophisticated timing firing mechanism that enabled a front-mounted machine gun to fire through the propellers.[13]

Close air support was also introduced during the First World War. Casualties among the air units engaged tended to be high. For example, the Royal Flying Corps, No. 80 Squadron, suffered 75 per cent casualties in the final 10 months of the war, primarily from ground attack missions.[14] As with air-to-air combat operations, so-called 'trench-strafing' missions required ongoing development of aircraft for the role. By the end of the war the most advanced CAS aircraft in the British Royal Flying Corps was the Sopwith Salamander, which had an armour-plated fuselage, two Vickers machine guns, and carried four light bombs. The Germans developed the Junkers J 1 aircraft for ground attack missions, which is notable for being the first aircraft with an all-metal fuselage. Although the ground attack role was clearly an important development in air power, it made little impact on the outcome of battles during the First World War. Victory or defeat, especially in the final stages of the war, was generally decided by ground operations involving artillery and combined arms units.

In relation to the interwar development of doctrine and air power theory, the most significant role for air power in the First World War was strategic bombing. The scale of operations, and the associated damage from aerial bombardment of urban areas, was minimal during the war. In turn, strategic bombing had little if any strategic impact on the outcome of the conflict. However, the little bombing that did occur fired the imagination of theorists and practitioners. Theorists such as Guilio Douhet (more of him later) extrapolated from the limited experiences of the war, and theorised what would occur if large numbers of bombers were used against industrial targets and civilian populations.

Perhaps the most surprising innovation during these very early days of air power was the development of naval aviation. The British Admiralty had been studying the use of aircraft since before the war. By the outbreak of the conflict the Royal Naval Air Service had been established, with 93 aircraft and six airships under its command. The primary role for naval aviation during the First World War was reconnaissance. Naval aircraft were involved in anti-submarine warfare operations, and conducted raids against German naval forces in their bases, such as the Cuxhaven raid in December 1914. The latter involved carrier-borne aircraft.

All told, the First World War was critical for the development of air power. Although military innovation is also pursued during peacetime, developments during wartime are afforded the opportunity of being tested in the cauldron of battle. With all sides looking for a crucial breakthrough in the war, the various roles of air power were tried and developed. Thus, by coming in the very early stages of heavier than air flight, the 1914–18 conflict gave air power an accelerated start to its strategic career. However, for the same reasons, air power was not able to mature sufficiently during the war, and thus had little impact on the final outcome. Importantly, though, the pioneers of air power learnt many valuable lessons that could be refined and applied in the future.

The development of interwar theory

The type of air power that each country developed during the interwar period was influenced by their respective strategic cultures and current strategic challenges. For example, Britain and Germany developed different approaches during this period. Due

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to their physical separation from the continent of Europe, the British saw air power as a means of long-range attack. A bomber fleet could perform a similar function to that of gunboat diplomacy, by striking directly at urban areas for strategic effect. In contrast to the American approach, which focused on industrial targets, the British went for morale bombing against civilian populations. For their part, the Germans, who had a land-based strategic culture, focused their development efforts on the close air support mission. The primary objective of German air power was to support the army in the quick defeat of their neighbours. These distinct approaches to the development of air power led to significant differences in design and procurement. The British eventually developed heavy, four-engine bombers such the Halifax and Lancaster. In contrast, Germany focused its attention on battlefield support aircraft, such as the Stuka. The Germans did develop long-range bombers, but only lighter variants with two engines, which consequently had smaller payloads. At one stage during the interwar period the British gave too much prominence to their bomber fleet, giving less prominence to fighter development as a result. Thankfully, Sir Thomas Inskip, in his role as Minister for the Coordination of Defence, noted the dangers of such an approach, and Britain consequently entered the war with a workable fighter force, which proved critical in the Battle of Britain.[15]

In light of the experiences of the First World War, the interwar period saw air power theory develop in a number of different directions. Strategic bombing was of interest to all the great powers, but their differing strategic cultures led them to develop slightly different approaches. Although not mutually exclusive or entirely distinct, two different theoretical approaches to strategic bombing developed: morale bombing and the industrial web theory. Both approaches focused on the destruction of the enemy's will and capability to resist. However, each focused on different target sets and routes to victory. At the forefront of morale bombing theory was Italian pilot Giulio Douhet. The industrial web theory was developed primarily in the United States, with Captain Billy Mitchell being the leading exponent.

Douhet's main work of theory is *The Command of the Air*, and contains two main steps for the successful exploitation of air power. The first step, as the title of the book implies, is to gain command of the air. Douhet defines this condition as being able to fly against the enemy while denying him the same. Command of the air is to be gained by offensive action against the enemy's air bases, thus destroying his aircraft on the ground.[16] During the Second World War the German Luftwaffe almost fulfilled this requirement when attacking RAF bases. However, a shift to attacks against urban areas took the pressure off the RAF and enabled it to recover sufficiently. In contrast, later in the war, the Luftwaffe was largely destroyed in the air while defending Germany from aerial bombardment. Thus, it is clear from the experience of the Second World War that command of the air can be achieved by destroying the enemy either on the ground or in the air. The war in Europe also suggests that strict command of the air is not necessary in order to achieve significant results from an air campaign. In 1944–45, the Allied air forces were still taking heavy losses over Germany, but, in turn, were destroying large sections of Germany's main cities.

The experiences of the Second World War suggest that Douhet may have been slightly erroneous on the methods to establish command of the air. In addition, history

suggests that with the use of the term 'command' he also demanded too benign a situation within which to commence offensive air operations. As shown above, a substantial bombing campaign could be conducted in the face of significant enemy opposition. However, the Italian theorist was correct to promote the establishment of a state of affairs in which the enemy was unable to mount offensive operations. In particular, the absence of an enemy offensive capability enables one to concentrate one's own aggressive efforts against him, rather than diverting resources into defence. It may be prudent to conclude that 'command of the air' suggests an absolute position. Therefore, as with sea power, it may be more appropriate to talk in terms of control of the air, this term referring to a more limited condition in which the air environment may be controlled sufficiently for a period of time to enable successful air operations. Control denotes a situation in which the enemy may still be able to reduce the efficacy of one's operations to some extent, which, in turn, may lead to some losses. However, for control to exist the main mission must still be able to be undertaken with relative operational success.

Once command of the air is established, the second phase of Douhet's theory of air power can be undertaken: bombardment of urban areas. For Douhet, the great strategic promise of air power was its ability to literally fly over the enemy's surface forces and strike at vulnerable centres of gravity, especially the civilian population. Having lived through the costly stalemate of the First World War, Douhet saw air power as a means to revive quick and decisive victories. Douhet argued that the untrained civilian population would not be able to withstand aerial bombardment, and, in the face of such attacks, would quickly pressure their political leaders into compromise or surrender. Put simply, air attack could rapidly destroy the will of the enemy to resist. In order to achieve this, Douhet proposed the use of three different types of munition: high explosives, incendiary and gas. The last, aside from acting as a terror weapon, would be used to complicate the recovery efforts of the emergency services in bombed cities. When one considers the panic caused by the limited air raids of the First World War, Douhet's theory, based as it was on significantly greater numbers of bombers and more diverse munitions, appears plausible. It is a theory built on experience, with the addition of modern technology applied in greater numbers.

However, as will be discussed shortly, Douhet's theory did not survive the test of the Second World War. At this juncture it should be noted that neither in Europe nor in Japan was gas used during air raids. Thus, in one aspect Douhet's theory was never fully put to the test. As valid as this defence of the theory may appear, it can be argued that the addition of gas may not have increased the levels of terror and devastation much beyond that achieved with the firestorms in Hamburg, Cologne and Tokyo. The supporters of Douhet (or at least those who support a version of his air power theory) have another moment in the Second World War that may verify the theory: the atomic attacks on Japan and the empire's subsequent surrender. This debate will be addressed shortly. For now, it is worth noting that Douhet never envisaged the advent of nuclear weapons. Nonetheless, that does not automatically invalidate the attacks of August 1945 as proof that the theory in general worked.

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The Second World War

The Second World War provided an extensive test for the theory of morale bombing. The early years of the war made it clear that the practice of area bombing was far more difficult than the theory perhaps assumed. Navigating over central Europe and hitting the designated targets proved to be a significant challenge. With the technology available at the time, bomber crews occasionally bombed the wrong city, and would often miss their target by five miles or so. If they did reach their intended target, defences proved to be far more robust than the mantra of 'the bomber will always get through' assumed. Aircraft losses were substantial, and, in response, the RAF's Bomber Command shifted to nighttime bombing raids. Nonetheless, although it took a few years for the instrument to mature, eventually Allied air power was capable of inflicting terrifying levels of destruction on Germany and Japan. For example, against Germany the Allied bombing campaign destroyed 40 per cent of the urban areas of its 70 largest cities, and killed approximately 305,000 civilians.[17] And yet, despite the massive increase in efficacy, the bombing raids did not lead to a collapse in morale. Similarly, although there is some evidence that the V-2 rocket attacks on London caused considerable panic at the time, it did not come close to knocking Britain out of the war.

In addition to the disappointing results of morale bombing, the economic effects were also less than hoped for. Despite substantially increased levels of bombing, by March 1945 German armament production was 50 per cent higher than in January 1942.[18] This places a considerable question mark over the ability of strategic bombing to affect the will and capability of the enemy to resist. However, while air power may have fallen short of Douhet's predictions, strategic bombing did make a considerable contribution to the war effort. In order to defend the Reich from the air, Germany had to divert considerable resources to the effort. It has been estimated that two million Germans were involved in defence against the air raids, as well as 60,000 valuable 88mm anti-aircraft guns and the required ammunition.[19] Although industrial production rose during the campaign, it is reasonable to suggest that it would have been much higher without the destruction and disorder wrought by the bombers. In addition, for much of the war the air campaign was the primary means by which the western allies could attack German interests. This not only improved morale at home, but also kept (just) the Soviet leadership satisfied that it did not have to bear the burden of fighting alone.

There is an important postscript to this debate: Hiroshima and Nagasaki. The atomic attacks on Japan in August 1945 are significant in the morale bombing debate. This is because the Japanese government surrendered not long after the attacks, and without the need for an invasion of the home islands by US forces. Indeed, some within the Japanese government, such as Prince Konoye and Premier Suzuki, explicitly make reference to the atomic attacks as one of the main reasons for the decision to surrender.[20] It is, therefore, plausible that Douhet's theory was finally vindicated, albeit with a technology that he did not originally envisage. It appears that there is some evidence to suggest that the prospect of further city devastation by a lone B-29 bomber did play a part in the Japanese decision to surrender. However, it is disingenuous to assess the atomic attacks in isolation. As with the 'transportation plan' in the campaign against Germany (discussed later), the atomic attacks came at the end of a war that was becoming increasingly costly for Japan, and without much prospect for success. The homeland

was already suffering from the affects of a devastating conventional area bombing campaign. Just as important, the Japanese economy had been severely curtailed by a maritime blockade. Finally, all these depravations were in support of a war that was obviously being lost. This final point had been made clear by the defeat of the main Japanese Kwantung army in Manchuria. Thus, as in Germany, the bombing campaign against Japan did make a significant contribution to the war effort, but its effects must be considered in conjunction with the surface campaigns.

While the British had been developing the theory and practice of area morale bombing, for the war in Europe, the Americans had been constructing a different form of strategic bombing: industrial web theory. Rather than focusing on the population's will as the key target, theorists such as Billy Mitchell endeavoured to create a more precise instrument that could attack key industrial targets. This approach was based on the notion that a modern industrial economy was constructed of various key industries and services. These key nodes in the system included the railway network and coal and steel production. It was hoped that precision attacks against such target sets would severely disrupt the war-making potential of an enemy. Indeed, as witnessed during the Second World War, industrial target sets could be narrowed down to even a handful of factories or dams. Although the Dambusters Raid was a British operation, it owed much to the American industrial web theory. Those who planned and approved the raid hoped that the destruction of three key dams would severely retard German industrial production by interfering with the supply of electricity, as well as flooding parts of the Ruhr, Germany's industrial heartland. In a similar vein, in October 1943 the United States 8th Air Force attacked three ballbearing factories at Schweinfurt in Germany. Ballbearings were a crucial component of the German war machine, and as such the planners hoped they had identified a key node in Germany's industrial web. In reality, both raids failed to achieve significant results, and both at high cost. Of the 19 aircraft involved in the Dambusters Raid, eight were lost and of the 291 B-17 bombers used at Schweinfurt, 77 failed to return.

The experiences of the Second World War suggest that those conducting precision bombing campaigns face some severe operational challenges. It also reveals that modern industrial economies are far more robust than imagined by the theorists. However, modern research suggests that the industrial web theory may have had significant success late in the war when the bombing campaign made a concerted effort to attack the German railway network. The so-called 'transportation plan' made it extremely difficult for Germany to move around the fruits of its industrial output.[21] However, while successful, it should be noted that the campaign against the railway network came towards the end of a long and costly war. Also, without the pressure being applied by ground forces, the impact on Germany's industrial and supply system would have been minimal. Even when the seemingly correct target set was chosen, the results of air power still relied on synergistic action with ground forces. Without surface action, German logistical demands would have been far smaller, and thus the impact of air raids against industry and transportation would have been less keenly felt. As will be discussed later, the industrial web theory has continued to develop, and in recent years has been extremely influential in shaping modern air campaigns, such as those in Iraq and Kosovo.

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The overall impact of strategic bombing in the Second World War may be open to question, but the debate is less contentious concerning close air support (CAS). Both Generals Rommel and Montgomery recognised the importance of gaining command of the air for ground operations. In fact, Rommel was unequivocal about the role of air power: 'In every battle to come the strength of the Anglo-American air force was to be the deciding factor.'[22] In the relatively short time since the First World War, air power's role over the battlefield had matured substantially, making significant contributions in a number of campaigns. However, as with strategic bombing, some of the limits of air power were still evident. For example, the weather could all but neutralise the effects of air power.

The Battle of the Bulge (December–January 1944–45) provides us with a telling example of these strengths and weaknesses. It also provides an excellent indication of the requirements for a successful air–land battle, and what happens when these are ignored. In all, over 8000 aircraft were used during the battle. The Germans contributed 2400 aircraft, which was more than they had committed to the Battle of France in 1940. In response, the Allies were able to deploy 6000 tactical aircraft and heavy bombers into the theatre. Already outnumbered, the Germans suffered further because during the planning phase, the Luftwaffe was kept in the dark about the real nature of its mission. In order to minimise the chances of its Ardennes offensive being uncovered prior to the assault, German High Command limited knowledge of it within its own armed services. Thus, the Luftwaffe had been ordered to prepare for a concentrated defensive operation against the Allied bombing campaign over Germany. On this basis, it planned and designed its force in isolation from the ground commanders, ready for air-to-air combat rather than air-to-ground operations. German hopes relied on poor weather to reduce the significance of the Allies' numerical air advantage. Yet, despite the cloudy weather, the Allied Ninth Air Force made 136 kills in the first three days of the battle. However, on 19 December (the offensive began on the 16th) the weather deteriorated to the point that aircraft were grounded until the 23rd. It was during this period that the German advance reached its deepest penetration.

In contrast to the Luftwaffe, whose primary objective was direct support for the ground forces, Allied aircraft concentrated first on achieving air supremacy. Beyond this, Allied air forces were ordered to attack German ground spearhead forces, and, third, to conduct an interdiction campaign. The Allied air campaign in Europe enjoyed central command and control under General Eisenhower and his deputy Air Chief Marshal Tedder. Once the weather cleared on 23 December, Allied aircraft focused their attention on the Luftwaffe. They constructed a layered defence over the battlefield, thereby engaging German fighters in the air, and also attacked the German Air Force at its bases. Such was the success of the air supremacy campaign that the Luftwaffe failed to make any impression on Allied ground operations during the entire battle.

To make matters worse, as the battle progressed the Luftwaffe lost focus. It split its sorties between ground support missions and defensive air operations. The result was a failure to concentrate its efforts in either direction. However, even when the Luftwaffe did mass its forces, it suffered what has been described as a fatal blow. On 1 January 1945 the Luftwaffe launched a dawn raid on Allied air bases in the theatre. For the loss of 127 Allied aircraft (which were replaced in a day), the Luftwaffe lost 300 aircraft and

many of its experienced leaders and unit commanders. As an aside, it is worth noting that the Allied aircrews attacking German airfields benefited enormously from intelligence operations. Thanks to radar and radio intercepts, Allied aircraft were able to time their attacks to coincide with the return of Luftwaffe forces to its bases. Thus, they engaged the Luftwaffe when it was low on fuel and ammunition.

In contrast to the ineffectiveness of the German air effort, once air supremacy had been achieved, Allied air forces were able to launch devastating attacks on German forces and their supply routes. In a battle in which the Germans needed to maintain a good operational tempo, Allied air supremacy restricted the enemy to nighttime manoeuvres. In support of the ground attack element, the interdiction campaign further stymied German operations. Hundreds of German vehicles (including tanks) were abandoned due to lack of fuel. Overall, during the Battle of the Bulge, the Allies conducted an effective air–ground campaign, within which, as noted by the commander of German Army Group B Field Marshal Model, air power blunted the German advance and then starved German forces of its essential supplies. The success of the CAS operations was made possible by an effective air supremacy campaign. Thus, it appears that Douhet's focus on achieving command or control of the air received important validation over Europe. In addition, Allied air forces undertook some significant resupply operations. Most notably, before the siege of Bastogne was lifted on 26 December, 962 air sorties were flown to deliver 850 tons of supplies to the Allied forces defending the town.

The Second World War bore witness to numerous examples, both good and bad, of CAS. From the early experiments of the First World War, the CAS instrument matured significantly from 1939–45. From these experiences a number of principles for success can be constructed. CAS is a role that has to be developed over time with the forces involved. As the Germans discovered at the Battle of the Bulge, it is not something that can be simply bolted on to existing arrangements. The equipment, doctrine, procedures and personnel have to be prepared in advance for the CAS mission. This refers to those on the ground as well as in the air. Such issues as friend and foe identification require diligent work. At the Battle of the Bulge, German pilots paid a heavy price for failures in this aspect of CAS operations. Over 100 German fighters were brought down by their own ground forces when returning from one particular mission. In order to ensure smooth and effective coordination, central command and control is essential. The air and ground assets must be perceived as an organic whole. This is further facilitated by the embedding of forward air controllers among the ground units, as well as the co-location of headquarters. As in any military operation, personnel are crucial. An understanding must be developed among the air and ground staff. Once established, a good working relationship must be maintained.

If the Battle of the Bulge provides a small indication of what air power can achieve in logistics, it still does not come close to the efforts or success of air-based logistics during the campaign in Burma. The geography of Burma, allied to the initial success of the Japanese in the theatre (in particular the capture of Rangoon and its important transportation links), made movement and resupply a significant problem for Field Marshal Slim's Fourteenth Army. Much of Burma was covered by thick forest, with mountains that split the country into three enclaves and funnelled the main transport links along a

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north–south axis. Thus, for Slim, who was often moving either east or west, this presented a severe challenge. Air-based logistics provided Slim with much improved ability for resupply and deployment. Air-based logistics were particularly important and impressive at the Battle of Imphal, where 155,000 British troops were surrounded. During the battle, 540 tons of supplies were air lifted into Imphal every day, casualties were evacuated, and an entire division (5th) was moved 260 miles to reinforce the beleagured troops.

Beyond resupply, air power gave Slim the ability to conduct some offensive operations deep into the enemy's rear. Up until this point in the campaign, the Japanese had enjoyed a significant advantage in manoeuvre, often flanking the more cumbersome British forces. In order to complicate Japanese operations, and to retake the initiative, Orde Wingate and his Chindits were deployed and supplied by air to operate in the enemy's rear. Particularly noteworthy was Operation Thursday, which included three brigades, two of which were deployed by air along with 2000 mules.[23]

Wingate's operations in Burma provide us with a glimpse of what some considered to be air power's greatest potential contribution. Alongside strategic bombing, air-mobile and airborne forces appear to offer a genuinely new capability in warfare. The prospect of deploying troops by air has been under discussion since at least the eighteenth century. However, inevitably, it was not until the invention of heavier than air flight that the theory could become reality. To this end, Billy Mitchell devised an ambitious plan for an airborne operation during the First World War, involving the deployment of 19,000 troops. However, the conflict ended before the plan could be fully realised. Thus, as with other innovations in air power, it was only during the Second World War that airborne forces came of age. However, unlike strategic bombing, which has continued to develop and prosper in many respects, airborne operations experienced both their zenith and nadir during the Second World War. Although airborne forces enjoyed some notable successes, success was often unpredictable and came at too high a price.

Examples of success for airborne forces include the capture of the Belgium fort Eban Emel during the invasion of the Low Countries in 1940. This seemingly impenetrable fortification was captured by German glider-borne troops, who were able to bypass the main defences by landing directly on top of the fort. Another successful operation was the rescue, by German forces, of the Italian fascist leader Mussolini from a mountain-top hotel in the Appenine mountains. Again, glider-borne forces were used, and completed their mission without the firing of a single shot. The airborne nature of the mission provided them with the decisive element of surprise. Ironically, from a German perspective the greatest airborne raid of the Second World War, the capture of Crete, was the operation that signalled the end of large-scale airborne operations for them.

Box 9.3 **The airborne assault on Crete**

The German capture of the island of Crete in May 1941 was led by 10,000 airborne troops. The invasion plan centred on the capture of four key points, with Maleme airfield being the most significant. The airborne forces were split

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between four objectives so as to maximise surprise and confusion among the defenders. However, the lack of concentration of force hindered German progress, and by the end of the first day none of their objectives had been captured. It took the unnecessary withdrawal of New Zealand troops from Hill 107, which overlooked Maleme airfield, to enable the capture of this key point. With the airfield secure, German reinforcements could be flown in, and the fate of Crete was sealed. However, the Germans paid a heavy price for the capture of Crete, taking approximately 7000 casualties.[24]

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Despite the successful capture of Crete, German High Command perceived the costs of the operation to be too high. Hitler's judgement on the implications of the mission for the future of airborne forces was stark: 'The day of the parachutist is over.' This negative assessment was not, however, shared by the Allies. The British and Americans, who had been developing their airborne component since before the war, put faith in division-scale drops during the Normandy landings and in Operation Market Garden that followed. In support of the Normandy landings, generally speaking, Allied airborne forces (containing both paratroopers and glider-borne forces) achieved their primary objective, which was to protect the beach landings from German counterattack. This was achieved by capturing or destroying key bridges, neutralising enemy capabilities (such as the artillery battery at Merville), and generally sowing confusion within the German ranks. However, although successful, the operation did highlight some of the key deficiencies of airborne operations. Poor weather and inadequate navigation meant that the forces often missed their landing zones and were dispersed over a wide area. Thus, without sufficient mass, the units tended to suffer higher rates of casualties in the coming battles than was anticipated. It is to the credit of the troops involved that their objectives were met.

Even more problematic than Operation Tonga (airborne operations in support of the Normandy landings) was the failed Operation Market Garden in September 1944. Field Marshal Montgomery was looking for a quick end to the conflict in the west, and put together a plan for an audacious thrust into the Reich. Central to the mission was the rapid capture of five road bridges in Holland, before the Germans could blow them up. The British 1st Airborne Division, supported by the Polish 1st Independent Parachute Brigade, was tasked with the capture of said bridges. There were a number of problems associated with the operation, but the most significant ones related to the geography of the landing and drop zones, and poor intelligence. Due to the terrain around the bridges, allied to the placement of German flak guns, the 1st Parachute Division had to land approximately eight miles from its objective. Poor intelligence, or rather the poor use that was made of the available intelligence, failed to note that elements of the 9th and 10th Panzer divisions were in the area at the time. As a consequence of the problems faced (including the delay of XXX Corps to reinforce the airborne troops), Operation Market Garden failed to achieve its objectives, and did so at a heavy cost. The 1st Parachute Division lost three-quarters of its men (killed and captured).[25]

In light of the experiences of the Second World War, although airborne forces are still

maintained in many armies, they have seldom been used in their primary role, and certainly not in significant numbers. There have been a few successful operations in the post-war environment, including recent drops in Afghanistan and Iraq.[26] However, it seems that Hitler's assessment has proved correct, and the airborne revolution, which could have been one of air power's great contributions to warfare, died on the island of Crete and around the bridges of Arnhem.

While fixed-wing airborne operations have failed to meet early expectations, rotary-wing air power has flourished as a strategic instrument. Air-mobility provides forces with increased manoeuvrability and higher operational tempo. This may be especially valuable in hostile terrain against elusive irregular foes waging a guerrilla campaign, in which hit-and-run tactics are used to evade prolonged enemy contact. Although they may be vulnerable to ground fire in certain situations, helicopters can offer significantly increased levels of force protection in other circumstances. During British Army operations in Northern Ireland, helicopters were used to reduce the exposure of forces to IRA roadside explosive devices. More recently, there has been much criticism of the British government surrounding the lack of helicopters for operations in Afghanistan. The vast majority of British casualties in Afghanistan are caused by IEDs aimed at mounted or dismounted infantry forces. The increased use of helicopters would, therefore, reduce the threat from IEDs while forces are in transit. However, as noted in the section on the limitations of air power, at some point, forces engaged in counterinsurgency operations have to patrol on foot among the population. Thus, helicopters cannot provide the entire answer to this problem, but they do give a commander greater flexibility when balancing operational efficacy with force protection.

As an asset of air power, helicopters have utility in many different contexts. In the maritime environment they play a significant role in anti-submarine warfare and airborne early-warning operations. In support of ground forces, attack helicopters are potent offensive instruments. Due to their low profile, they are also ideal for insertion and extraction operations. In many respects, the many varied roles that helicopters perform are indicative of air power in general, in that they have significant utility and influence in most aspects of modern warfare. However, as with air power in general, their role is normally supportive rather than decisive.

Modern air power

Air power theory in the modern period has tended to focus on the coercive use of air power, and in particular highlights the potential advantages to be gained from attacking the cohesion and functions of the enemy system.[27] These air missions have been supposedly enhanced by the use of precision attacks against perceived key nodes in an enemy system. In essence, the aforementioned industrial web theory has evolved to take account of changing technological parameters, as well as changing cultural perceptions on the use of force. Morale bombing, certainly in its area-bombing guise, has all but disappeared. From an operational perspective precision munitions appear to bring the industrial web theory to fruition. However, as will be revealed, even the addition of precision weapons, guided by advanced reconnaissance and intelligence assets, has failed to deliver decisive strategic effects.

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The first true post-war test of air power as a coercive instrument came during the American war in Vietnam. Rolling Thunder (1965–68) was a campaign of graduated response, designed to force the North Vietnamese to halt their support of the communist insurgency in South Vietnam. During the bombing campaign 643,000 tons of munitions were dropped. This represents a considerable military effort, and is actually greater than the tonnage dropped by the combined bomber offensive against Germany in the Second World War.[28] Despite such effort, Rolling Thunder failed to achieve its objectives. This failure was due to a wide range of factors.

Graduated response is a flawed strategy for the application of air power for coercive effect. As the name suggests, it works by slowly increasing the intensity of a bombing campaign. In theory, the target actor, having suffered a small amount of pain, should be coerced by the fear of greater levels of punishment. However, in reality, the gradual increase in activity merely enables the target state to become accustomed to the pain and adapt accordingly. In order to facilitate what was hoped would be peace negotiations, Rolling Thunder included a number of bombing pauses. This is clearly problematic as it gives the enemy respite and the chance to recover in both physical and morale terms. The limited nature (certainly in the early stages) of graduated response was also inappropriate for the circumstances of the Vietnam War. For the North Vietnamese leadership, the war was very much a total effort. That being the case, the infliction of limited amounts of pain had little impact on their decision making. The American campaign was also ill suited to the context of Vietnam, because it focused on industrial and logistic targets. Although North Vietnam did have some industrial assets, and the conventional operations of the North Vietnamese Army (NVA) relied on regular supplies, the insurgency could be maintained with minimal logistical support. Also, against a predominately agricultural society (such as that of North Vietnam), the destruction of industrial targets had little sustained impact. The one target set that may have had a more substantial impact, irrigation dams, were not bombed due to concerns about the human impact on the rural population. Finally, Rolling Thunder also suffered from a range of other restrictions. Most of North Vietnam was off limits for the bomber crews. This included the main urban and industrial centres of Hanoi and Haiphong. These, and other potential targets, were avoided so as not to antagonise the Soviet Union and China, and thereby avoid an escalation of the conflict.

Many of the shortcomings of Rolling Thunder were rectified during the Linebacker raids in December 1972. The Linebacker campaign had the similar objective of coercing North Vietnam to the negotiating table. On this occasion the campaign was intense and short-lived, and importantly included targets in the North such as Hanoi and Haiphong. In the short term, the Linebacker raids appeared to be successful, as the North's leadership returned to negotiations that eventually led to the Paris Peace Accords. However, a closer examination of those accords reveals a less than satisfactory outcome for the United States and South Vietnam. Under the terms of the accords, the North Vietnamese were allowed to maintain forces in South Vietnam (under certain conditions). In reality, the accords were really a means to remove American forces from South Vietnam. This was the objective of the Nixon Administration, and also that of North Vietnam. Indeed, the North soon restarted its operations in the South, and eventually captured Saigon in April 1975. It can be concluded that, although the Linebacker raids undoubtedly did

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inflict pain on North Vietnam, they did not coerce the North's leadership into giving up its goal of conquering South Vietnam. The bombing raids may have accelerated the negotiation process. However, it was a process that the North Vietnamese were happy to engage in so as to facilitate the withdrawal of American forces from the conflict.[29]

At the forefront of modern air power theory is the work of Colonel John Warden III. Warden's theory is built on the premise that an enemy should be perceived as a system, represented by concentric circles. Each circle represents an enemy asset. The inner ring is leadership, with energy conversion, infrastructure, population and military forces making up the four outer rings. Within each ring there are strategic aim points that represent the key nodes to be targeted. Warden's theory is very much in the mould of Clausewitz's theory of centre of gravity. However, although Warden believes that leadership is the key asset, because it is the decision makers that ultimately can bring an end to the war, attacks should be conducted throughout the circles simultaneously. By conducting this form of 'parallel warfare', the enemy's system can be overloaded, its cohesion undermined, and it will be unable to respond effectively. The leadership's ability to conduct an effective campaign will be damaged, and it will be subjected to pressure from many directions. In tune with Douhet's classical approach, Warden identifies achieving air supremacy as the initial priority for air forces.[30]

Warden's work is yet another attempt to codify an independently decisive strategic role for air power, with information age technology providing new levels of potency. This advanced form of strategic air power was put to the test at the beginning of the 1991 Gulf War and the conflict in Kosovo in 1999 (although the latter was not an example of parallel warfare, it did benefit from more advanced weapon systems than in 1991). Both conflicts provide plenty of scope for debate. The 1991 Gulf War had to be concluded with a ground campaign. However, the short duration of the land phase (100 hours) is seen by some as evidence of the maturation of air power as a decisive instrument. On initial investigation, air power in the Kosovo conflict appears to have been even more decisive. Unlike the Gulf War, NATO achieved its objectives without an offensive ground campaign. As previously noted, such respected military commentators as John Keegan have argued that the success of the coercive air campaign in Kosovo is proof that air power is now able to win wars independently.

However, when these two conflicts are examined more closely, the evidence in favour of independent strategic effect is less compelling. Statistics for the 1991 air campaign are certainly impressive. Within the first three days of the air campaign 70 per cent of Iraq's 'strategic' targets were hit. The Iraqi electrical power grid was virtually destroyed and within 10 days Iraq's refined oil production was totally eliminated.[31] In addition to attacking the inner rings of Iraq's system in and around Baghdad, air power assets were also engaged in interdiction operations and eventually direct attacks against fielded Iraqi forces. These direct attacks severely damaged the Iraqi army's logistics and morale. One has to conclude that the rapid disintegration of the Iraqi army in Kuwait once the ground campaign began was largely a result of the cumulative effects of the air campaign. However, there are a number of factors specific to the Gulf War that, once noted, begin to question whether the success of the air campaign could be applied elsewhere. That being the case, 1991 may not be the turning point in the development of air power that it is often claimed to be.

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In 1991 Iraq was almost the perfect enemy for Coalition forces. The Iraqi military used largely Soviet equipment and doctrine; precisely the type of enemy the United States had been training to fight for 45 years. In addition, the war was fought in open desert terrain, which, due to the absence of cover, suits air power perfectly. Many of the Iraqi front-line units that crumbled in the face of the ground assault were made up of conscripts. Arguably, the effects of the air power campaign would have been more pronounced on these units than professional forces. Also, the nature of the Iraqi withdrawal, especially the escape of the Republican Guard units, suggests that Iraqi command and control was still functioning, despite the air attacks launched against it. Also, the fact that a ground campaign had to be fought at all is a clear indication that air power, as an instrument of decision, still suffers from an inability to physically control ground. Finally, the coercive campaign against the inner rings of the Iraqi system failed to exert enough pressure on the leadership. However, none of these factors can hide the fact that air power played a major role in bringing about a successful end to the Coalition campaign. Air power may not have been independently decisive, but it was certainly an indispensable component of Coalition strategy.

In the absence of a ground campaign, Kosovo provides an even more contentious case study in modern air power. In contrast to the Gulf War's high-intensity Instant Thunder campaign, air operations in Kosovo took a more graduated response approach. However, the use of graduated response does not seem to have been planned. Rather, it happened by default as naive pre-war assumptions by the Clinton administration, concerning how little bombing would be required to coerce the Milošević government, had to be re-evaluated.[32]

The air campaign in Kosovo had two main components. Targets associated with the leadership were attacked in Serbia (including attacks on communications infrastructure), in order to coerce Milošević to cease his campaign of ethnic cleansing in Kosovo. The second element of the campaign was directed at Serbian forces in Kosovo and the logistics infrastructure supporting them. This part of the campaign was designed to degrade the Serbian forces' ability to continue their operations. Post-war analysis has revealed that the air campaign in Kosovo was remarkably unsuccessful. Very few Serbian forces were hit and approximately 10,000 Kosovo Albanians died during the period of the campaign. The failure of the campaign was largely due to a combination of effective deception operations by the Serbs and overly cautious operational procedures on the part of NATO. In particular, the latter included instructions for NATO pilots to fly above 15,000 feet in order to reduce their vulnerability to Serbian air defences.

Despite the failings of the air campaign in Kosovo, Milošević did accede to NATO demands. Therefore, it seems plausible to suggest that the coercive campaign against Serbia was successful. Attacks later in the war targeted against the business interests of Milošević's close allies appear to have made the difference. In addition, despite the many shortcomings of the campaign, NATO did not relent. It seems to have become increasingly clear to the Serbian leadership that NATO would continue to inflict increasing levels of pain, with no end in sight. Towards the end of the conflict, Serbian forces in Kosovo also began to feel the pain. As the Kosovo Liberation Army (KLA) increased its operations on the ground, Serb units had to concentrate in greater numbers, and thus became increasingly vulnerable to NATO air power.

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However, there were a number of factors not directly related to the air campaign that also appear to have had an impact on Serbian decision making. As the intensity of the air campaign increased, NATO leaders also began to openly discuss and make preparations for a ground campaign. Thus, although NATO ground forces did not engage their Serbian counterparts, they may still have had a coercive effect. Serbia also became increasingly politically isolated, especially after one of its closest allies, Russia, called on Serbia to accept the terms of the Rambouillet Agreement to end the conflict. Finally, it is important to note that one of NATO's primary objectives, the return of Kosovo Albanian refugees, could only be completed with the deployment of NATO ground forces into Kosovo. Without the physical security provided by NATO ground forces, many of the refugees would not have returned home. This again reveals serious shortcomings in the concept of control from the air.

All told, The Kosovo campaign provides an intriguing and controversial case study in air power at the turn of the century. Clearly, factors other than air power played a part in convincing the Serbs to accede to NATO demands. In this sense, air power appears to have once again failed to achieve independent strategic effect. However, it would be churlish to downplay the prominent role played by air power. The exercise of power in the third dimension provided NATO with the ability to coerce Serbia, over a prolonged period of time and at minimum cost, in contentious political circumstances. And, although other factors were clearly in play, air power was the dominant instrument of strategy in action. If anything, air power may have proven to be even more potent had NATO not displayed such poor strategic judgement in the early stages of the campaign. NATO proved to be an overly large, cumbersome alliance when it came to offensive operations. However, although it is undoubtedly true that the air campaign could have been waged in a more potent manner, it must also be noted that Serbia was an incompetent strategic foe. By intensifying the campaign of ethnic cleansing, Milošević played into the hands of those in the west who were calling for increased NATO effort. In conclusion, it seems that air power was the most suitable instrument to lead NATO's campaign against Serbia. And, generally speaking, it did the job required of it, in spite of the shortcomings of NATO. Finally, however, it must be recognised that the strategic impact of air power was complemented by other factors.

An interesting postscript to the discussion of modern air power theory is the work of John Boyd. Although originally designed as a theory of tactical air power, Boyd's work has been developed to become a general theory of war. The core of Boyd's theory is the OODA loop: observe, orientate, decide, act. This concept was originally developed as a result of Boyd's analysis of air-to-air combat during the Korean War, and was designed to explain the success of American pilots. Quite simply, the advantage lay with the pilot whose OODA loop operated more quickly, thus allowing him to achieve a higher operational tempo than his foe. Over time, this tactical model has been adapted to the higher levels of strategy. However, the central idea has always remained the same: advantage lies with him who can operate a more rapid decision–action cycle. Of course, it should be noted that this only holds true on the assumption that the decisions being made are correct and acted on in an appropriate manner. For the purposes of this chapter, the development of Boyd's theory is interesting because it is a case of one form of warfare inspiring the development of general theories of war or conflict.

Conclusion

Soon after the invention of heavier than air flight, it became clear that air power was a surprisingly flexible instrument with a range of military uses. Most of these were tested and developed during the First World War. However, the rudimentary nature of the technology at the time ensured that the third dimension had little impact on the outcome of the Great War. The experiences of 1914–18 did, however, initiate a period of rapid technological and doctrinal development. The Second World War saw most of these developments tested on a grand scale, although not all of them escaped with their reputation intact. Despite high levels of operational performance and a significant contribution to the war effort, area bombing was not tried again in any real sense. Perhaps even more perplexing is the demise of airborne operations. Paratroopers and glider-borne troops had some notable successes during the war, including at Eban Emel and Crete. However, the high casualty rates and unpredictability of operations make them very high-risk operations, certainly when conducted on a divisional scale.

In contrast to the demise of these types of operation, close air support has become arguably air power's greatest contribution to warfare. The sentiments of Rommel and Montgomery concerning the necessity of controlling the air over a battlefield are perhaps even truer today (at least in regular warfare) given the development of precision munitions. Air-mobility has also developed into a valuable capability. In recent years this is most obvious in irregular forms of warfare in difficult and hostile terrain.

The area of air power that still appears to command the most attention, especially in a theoretical sense, is precision strategic bombing. Warden's theories are merely the search for ever more critical targets, but still with the aim of destroying the enemy's will and capability to fight. The ideas and capabilities that have developed from the industrial web theory have been applied in many conflicts, including Vietnam, the Gulf War and Kosovo, to name but three. Although Kosovo and the 1991 Gulf War appear to signal an advance in the potency of air power, the instrument has yet to convincingly display an independent war-winning ability. This failure to fulfil the ultimate promise of Douhet's theory is largely due to the innate shortcomings of air power. In particular, air power's inability to control ground, due to its lack of physical presence, will always stymie it as an instrument of decision. However, this should not blind us to the many advantages air has in the field of strategy. Its rapid exploitation of the overhead flank, allied to modern navigation and precision munitions, endow it with substantial military potency. In this sense, Douhet was correct to promote the acquisition of command or control of the air. However, since warfare has a polymorphous character and strategy is so complex, a range of military capabilities is usually required to prevail. Air power is but one of those capabilities.

Key points

1. Air power is a surprisingly flexible instrument of strategy, but is limited by its inability to hold ground.
2. Most modern uses of air power were developed during the First World War.
3. The Second World War revealed that close air support was air power's greatest contribution.

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4. The Second World War also indicated that strategic bombing and airborne operations, while useful, failed to fulfil their promise.
5. Modern air power has continued to focus on close air support and coercive missions.

Questions

1. What are the characteristics that make air power a distinctive tool of strategy?
2. Can air power achieve independent, decisive strategic outcomes?
3. Is air power best thought of as a support to surface forces?
4. Has air power become the leading edge in modern warfare?

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10 Space power

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Reader's guide: Strategic thinkers have only begun to consider space; use of spacecraft in strategy; capabilities and limitations of communications satellites; capabilities and limitations of navigation satellites; capabilities and limitations of surveillance satellites; capabilities and limitations of space weapons; problems of developing theories to explain the role of space power in strategy.

Introduction

Battles beyond the atmosphere remain science fiction – for natives of this planet, at any rate. Nevertheless, spacecraft already play a critical role in earth's wars. Many of the most important new items of military technology of recent decades depend on satellites. Many of the most promising new approaches to conducting military operations that have developed since that time depend on satellites as well. Thus, twenty-first-century strategists must consider how to use space-based systems, and how to complicate the enemy's attempts to do so.

The United States and Russia have been conducting military activities in space since the late 1950s. Emerging powers such as India and the People's Republic of China are expanding their fleets of satellites and, in China's case, testing anti-satellite weapons. Insurgents in the least developed parts of the world take full advantage of satellite telephones. Nevertheless, military thinkers have only begun to develop theories about how to incorporate space technology into strategic planning. Like space itself, the significance of space technology for twenty-first-century strategy remains largely unexplored, and this introduces an element of the unknown into all discussions of contemporary politics and contemporary military technology.

This chapter summarises the ways in which space technology affects strategic thought in the early twenty-first century. The first four sections introduce the spacecraft and related technology that have proved most useful in military operations and other strategic activities. These sections outline what currently existing space systems can and cannot do. A concluding section discusses issues space technology raises for strategists. These range from theoretical questions about whether strategists should treat space strategy any differently from any other form of strategy to more immediate debates concerning which branches of the armed forces should control space operations.

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Space systems and what they do

Anyone who uses a mobile telephone, drives a car with a satellite navigation system, or watches weather reports featuring satellite photographs knows the basic functions spacecraft can perform. The limits to what spacecraft can do are less obvious. Nevertheless, most space vehicles perform only a few specific tasks. The way in which they perform these tasks is often predictable. Moreover, building and launching such vehicles is extraordinarily expensive, and even the richest space powers must content themselves with relatively small satellite fleets. Those who lose even a few of their satellites may find themselves deprived of important capabilities.

For these reasons, strategists have often found space systems insufficiently reliable and insufficiently flexible. Armed forces that lack satellites of their own remain capable of besting space powers in war. Prudent commanders are reluctant to become dependent on space systems – and, yet, these systems offer unique capabilities that armed forces cannot afford to ignore. The following sections explore both the capabilities and the limits of early twenty-first-century communications satellites, navigation satellites, surveillance satellites and space weapons, in that order.

Communications satellites

Wireless radios were a fabulous improvement over earlier forms of military communication, but they have significant limitations. The further one wishes a radio system to broadcast messages, the larger and heavier both the transmitter and its power source must be. Moreover, radio emissions travel in straight lines. Solid obstacles such as hills and trees can block them. Furthermore, since the earth's surface is curved, this means that it is difficult to send radio signals to earthbound recipients beyond the horizon – instead of curving with the earth, the signals go straight into space.

Even without spacecraft, there are ways to overcome these problems. Radio energy takes the form of a series of waves, and when the waves come relatively slowly – in other words, when the transmitter emits them at a lower *frequency* – they tend to warp and scatter in the atmosphere. Low-frequency waves are also more likely to reflect from solid objects. This allows them to bend and bounce their way around large obstacles, including the earth itself. One can even aim relatively low-frequency radio transmissions at the level of the upper atmosphere called the ionosphere so that they bounce back to points far beyond the horizon.

Lower frequency transmissions are, however, more susceptible to interference of all types, including intentional jamming. Conditions in the ionosphere change constantly, making ionospheric communications particularly unreliable. Low-frequency transmitters also require greater amounts of energy to broadcast a signal over a given range. This limits the amount of data a low-frequency transmitter can send over any period of time. The fact that low-energy transmissions spread and scatter in all directions is a boon to enemies who may wish to listen in.

If one can transmit one's messages in a straight line up to a satellite overhead and have it relay them in a straight line down to a recipient on the ground, one can use higher frequencies. This makes it possible to transmit more data more reliably with a higher degree of security using more compact equipment over longer ranges. If one has

access to a network of well-positioned satellites and ground stations, it becomes relatively easy to relay messages back and forth between any points on earth. For a strategist, this means that military personnel have gained an unprecedented capability to exchange information with comrades throughout the world. This also means that commanders have gained an unprecedented degree of control over their forces, even when those forces are far away, widely dispersed or both. Armed forces have found a mind-boggling variety of uses for these improved capabilities.

The path a communications satellite follows as it orbits the earth determines the times and places at which people on the ground will be able to use it. For most countries most of the time, the most useful position for a communications satellite is in a nearly circular orbit 36,000 kilometres above the earth's equator. In this position, the satellite circles the earth at the same speed that the planet revolves around its own axis, so that it remains fixed above the same point on the earth's surface: this is a *geosynchronous* orbit.

For those on the earth's surface and within range, a geosynchronous communications satellite is available 24 hours a day. Moreover, one can keep surface-based antennae pointed at the satellite without the need for complex and bulky tracking equipment. A satellite at 36,000 kilometres can look down on nearly one-third of the planet's surface, so three of them working together can relay communications to and from almost any part of the world. There is, however, an exception – due to the curvature of the planet, latitudes above 70° north latitude and below 70° south latitude are invisible to geosynchronous satellites.

Since substantial parts of Russian territory are above 70°, the Soviet Union placed one of its main constellations of communications satellites in what has become known as the *molniya* orbit. This orbit traces out a highly elliptical path at 63° latitude. The *molniya* path rises from a low point (perigee) of approximately 450 kilometres to a high point (apogee) of approximately 40,000 kilometres. During the approximately six hours the satellite spends on each rise and descent, it appears almost stationary to ground-based observers. Thus, the *molniya* orbit makes some of the convenience of geosynchronous communications satellites available at the poles.

One disadvantage of geosynchronous and *molniya* orbits is that, since they are so high, satellites following this path must broadcast their messages down over a substantial portion of the earth's surface. This makes it relatively easy for enemies to intercept them. Advanced communications systems can focus their transmissions sufficiently to overcome this problem (occasionally using laser beams rather than radio waves), but those who lack this technology may find communications satellites in lower orbits more secure. Placing objects in geosynchronous orbit also requires approximately 60 per cent more launch energy, making satellites which operate at lower altitudes more economical. For these reasons, armed forces continue to supplement geosynchronous communications satellites with platforms in lower orbits, despite the difficulties of tracking them and despite the danger that they will be out of range at critical moments.

Navigation satellites

Like communications satellites, satellite navigation systems improve on capabilities that armed forces already possessed. Maps, compasses and sextants help military

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personnel figure out where they are and how to get where they need to be. Radar allows one to locate one's position relative to fixed geographical features such as mountains. Since the mid-twentieth century, navigators have also been able to determine their position to within yards of a radio transmitter by using direction-finding equipment. Nations have set up networks of ground-based radio beacons allowing those equipped with suitable receivers to locate themselves. Although the procedures for using signals from radio beacons to find one's position on a map can be complex, advances in electronics have made it possible to produce cheap, compact receivers that perform the necessary calculations automatically. Missiles and other crewless vehicles equipped with appropriate sensors and data-processing devices can navigate using all these methods as well.

Nevertheless, for human beings, these methods require training, skill and concentrated effort. For crewless vehicles, these methods require expensive, complex and potentially unreliable technology. Most of these techniques also depend on favourable weather. Radio navigation using ground-based transmissions has the potential to be easier to use, but it suffers from all the drawbacks of ground-based radio communications systems. Moreover, beacon networks are expensive to maintain.

Just as a small number of communications satellites can relay messages to any point on the earth's surface, a small number of orbiting transmitters can serve as radio navigation beacons for the entire planet. In 2009 the best-known, most accurate and most widely accessible constellation of navigation satellites is America's global positioning system (GPS). The European Union, in partnership with the People's Republic of China, intends to deploy a comparable system known as Galileo, but Galileo has yet to become operational. Meanwhile, the PRC is expanding its own *Beidou* system, while Russia and assorted partners work to re-establish the USSR's Glonass constellation.

Modern satellite navigation systems perform even better than their designers originally hoped. The original specifications for the GPS called for a system that would allow military users to determine their position on the globe to within a 16-metre radius. In 1988 the US Air Force revealed that the system was actually accurate to within 10 metres.[1] If one can receive signals from a GPS receiver at a well-surveyed position on the earth's surface, one can use a technique known as differential GPS to achieve accuracy of four metres or better.[2]

Since the GPS system works by timing radio signals as they travel from navigation satellites to receivers on the ground, it offers users the additional feature of access to atomic clocks accurate to within 100 nanoseconds. Whereas users of more primitive space navigation systems often had to wait for satellites to line up in favourable orbital positions before taking a reading, GPS allows users to update their position as often as once per second. The GPS system is capable of encrypting its transmissions and of modulating them over a wide range of radio frequencies. This gives users a high level of protection against enemy attempts to jam GPS signals, or to override them with misleading fake ones.

GPS is so much more convenient and reliable than earlier methods of navigation that it has allowed armed forces to carry out operations that would previously have been impossible. A spectacular example of this took place in the 1990–91 Gulf War. In that war, the coalition of forces fighting under United Nations authorisation defeated the numerically superior Iraqi army by sending a force of 200,000 troops on a 320-mile

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march through the desert to attack Iraq's forces from the flank.[3] This manoeuvre took the Iraqi commanders by surprise, at least partially because the Iraqis had assumed that it was impossible. Iraq's own troops, despite their superior experience with desert conditions, would have found the wastelands the United Nations troops travelled through un-navigable.[4] The GPS-equipped coalition forces were able to sweep through the region in large numbers at high speed in operations that continued throughout the hours of darkness with minimal casualties and no significant mishaps.

The following summarises a few of the ways in which GPS gives armed forces new or substantially improved capabilities:

GPS simplifies the procedures forward observers use to direct airstrikes and artillery fire against enemy positions. This allows aircraft and artillery to hit targets faster and more accurately, with less waste of ammunition. This also reduces the risk that the airstrikes or artillery will hit civilians, friendly troops or other unintended targets. All this is true even when the aircraft and artillery use 'dumb' weapons systems. Aircraft firing precision-guided munitions – which may also rely on GPS – can achieve even greater accuracy while involving even fewer risks.

As the previous point notes, bombs, missiles and other forms of ordinance can carry their own GPS receivers to guide them towards targets. GPS is more accurate than many widely used methods for guiding munitions in flight. One can improve the accuracy of a projectile yet further by combining GPS with other guidance systems, so that the weapon continues to home onto its target even if it loses radio contact with the navigation satellites. Unlike many forms of precision weapons, GPS-guided munitions function in all types of weather, at all ranges and under all conditions of visibility. GPS also helps commanders target long-range weapons such as cruise missiles faster. In a similar fashion, GPS improves commanders' ability to retarget such weapons in flight. These facts make it easier for commanders to use such weapons against the most important targets in rapidly developing situations.

When armed forces attack high-priority targets, they normally fire multiple shells, missiles and other types of ordinance in order to be sure that at least one will hit. As GPS makes munitions more accurate, commanders can use fewer of them. This reduces collateral damage, allows commanders to use scarce precision weapons against more targets, and saves armed forces money. When one considers the fact that a single missile may cost over one million US dollars, one sees that the savings may be considerable.

GPS guidance offers nuclear weapons the same conveniences it offers conventional ones. By making nuclear warheads more accurate, GPS allows armed forces to use lower yield weapons to destroy targets that would otherwise have required larger and more destructive blasts.

GPS simplifies the process of refuelling aircraft in flight, allowing commanders to plan and execute long-range air missions faster with fewer chances of mishap.

GPS offers similar benefits to commanders who wish to airdrop supplies to forces or civilians on the ground.

GPS is a special boon for airborne troops, special forces, and all others who must operate in remote locations behind enemy positions. Among other things, GPS allows multiple teams operating in different areas to coordinate their actions with a historically

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unprecedented chance that they will all be in the right places at the right times.

In a similar vein, GPS makes it easier for commanders to manoeuvre major forces with formerly unattainable confidence that their tanks, aircraft, artillery detachments, infantry units and other military assets will move and fight together as planned, with a minimum number of traffic jams. GPS also reduces the need for large units to mark their routes in advance. This means that, by historical standards, commanders of large forces can change their plans on short notice, even when operating around minefields or in difficult terrain.

The combination of GPS and night vision equipment allows military forces to operate with unprecedented efficiency after dark.

GPS simplifies the task of rescuing downed pilots, marooned sailors and other lost personnel. This is good for morale, allows commanders to plan more daring missions with lower risk and maximises the chance that these highly trained fighters will return to battle.

GPS simplifies the task of drawing accurate maps.

Troops, vehicles and other military assets equipped with GPS receivers and suitable communications equipment can send commanders continuous, up-to-date information on their location. This allows commanders to use data-processing systems such as the American military's Blue Force Tracker to follow their forces' movements. Such systems can integrate information on friendly units with data on the location of opposing forces. (These data will also normally come from devices that use GPS technology.)

GPS helps logistical units deliver the right supplies to the right places at the right times faster and with less waste. This, in turn, allows forces of all types to carry out more ambitious operations more effectively on shorter notice and at lower cost.

Box 10.1 **Selective availability**

America's global positioning system originally included a feature allowing US government authorities to degrade the system's accuracy for users of standard GPS receivers while continuing to broadcast accurate signals in encrypted form. This feature, known as selective availability, was supposed to allow the USA to deny GPS access to its opponents. American military GPS receivers incorporated equipment allowing them to decrypt the signals and go on using the system at full accuracy. In the 1990–91 Gulf War, however, GPS proved so useful that US forces supplemented their officially issued receivers with large numbers of commercial models. Therefore, the US government chose to make fully accurate signals available to all users, despite the fact that it was in the middle of a war.

Since 1991, the USA has increased its stockpiles of military GPS receivers to the point at which it could use selective availability without harming its own troops. Nevertheless, selective availability reduced the GPS' value to commercial users. Since satellite navigation benefits such major industries as the airlines, America's policy of limiting access to the GPS retarded American economic growth. Meanwhile, the European Union announced that its Galileo satellite navigation system would be fully available to all users at all times.

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In 2000 US President William Clinton made fully accurate GPS signals available to everyone. In 2007 US authorities announced that the next generation of GPS satellites would lack the selective availability feature, so that future presidents will not be able to reverse Clinton's decision even if they might wish to. Meanwhile, the European Union has made China a partner in the Galileo project. As of 2009, China plans to transmit signals from its independent *Beidou* satellite navigation system on the same frequencies used by Galileo. This would permit Chinese authorities to mingle Galileo signals and *Beidou* signals in a confusing manner, giving Beijing the power to limit other users' access to both systems in much the same way that the USA once limited access to the GPS using selective availability.[5]

Nevertheless, a variety of factors complicate the problems of developing and maintaining space-based positioning systems. Many of the most significant ones stem from the fact that such systems do not work unless users can figure out exactly where the navigation satellites are. The laws of physics dictate that satellites must drift out of their original orbits over time, making their location gradually less certain. Factors ranging from collisions with micrometeorites to irregularities in the earth's gravitational field introduce further randomness into this process.

Satellites may use engines to help maintain their original positions. Such engines, however, require fuel. When this fuel runs out, there is no practical way to replace it. Fuel supplies also make satellites heavier, increasing the cost of launching them. For this reason, navigation satellites have a relatively short lifespan. The designers of the GPS system planned for satellites to last seven and a half years.[6] (Actual satellite lifespan varies, and often exceeds these specifications.) Less sophisticated navigation satellites may cease to function in a matter of months.

One way to keep navigation satellites more accurate for longer is to place them in relatively stable orbital paths. The earth bulges slightly at the equator, creating a corresponding perturbation in the planet's gravity. Since the geosynchronous orbital path passes directly above this bulge, it is comparatively unstable. For this reason, GPS, Glonass and Galileo use circular orbits inclined at approximately 63° and at an altitude of approximately 10,800 nautical miles above the earth's surface. Satellites at this altitude appear to move through the sky, so these systems require constellations of approximately two dozen satellites to provide 24-hour access at full accuracy to all points on the earth's surface.

The PRC, by contrast, based the first generation of its *Beidou* navigation system on geosynchronous satellites and a network of ground stations. This allowed it to achieve basic space navigation capabilities within China using only two satellites. China has, however, had to deploy more satellites to improve the accuracy, coverage and lifespan of the system. When complete, the *Beidou* system will require a similar number of satellites to GPS, Glonass and Galileo, and these satellites will follow a variety of orbits.

The original version of *Beidou* was completely dependent on ground stations. GPS,

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Glonass and Galileo require support from earth-based monitoring facilities as well. These installations track the location of the satellites and the performance of their internal clocks. Ground controllers use this information to recalibrate the satellites' signalling equipment in order to keep the navigation system functioning at maximum accuracy.

Those who wish to interfere with their opponents' satellite navigation systems may attack such earth stations. This will not, however, bring instant results. Even if America's enemies succeeded in physically destroying the GPS ground network, GPS satellites would continue to provide accurate readings for approximately six months.[7] Such an attack would also require successful strikes on a large number of well-defended installations, and is unlikely to be feasible except in such extreme scenarios as large-scale nuclear war.

Under most circumstances, the most practical way to stop opponents using space-based positioning systems is to jam transmissions from satellites. GPS incorporates countermeasures against jamming. One may safely assume that any other satellite navigation system designed with military purposes in mind will do the same. Nevertheless, no countermeasures are foolproof, and none can prevent a powerful electromagnetic pulse from disrupting all types of radio communication. Nuclear weapons generate such pulses, but there are non-nuclear devices for producing them as well.

Moreover, civilian satellite navigation equipment is not equipped to use anti-jamming countermeasures. This, one notes, is an obstacle for those who wish to save money by adapting cheaper civilian systems to military use. Even the United States armed forces found it necessary to use civilian systems during the 1990–91 Gulf War. The fact that commercially available satellite navigation equipment is vulnerable to jamming is also an obstacle for terrorists and other non-state actors, who may not be able to obtain purpose-made military hardware.

Since one cannot rely on uninterrupted access to satellite transmissions in combat, most armed forces continue to train personnel to navigate in older ways. Satellite-guided weapons frequently carry backup guidance systems based on other forms of technology. For missiles and other guided weapons, the combination of two types of guidance technology can be more accurate than either system would have been on its own. For humans, the need to learn and practise traditional methods of navigation often seems like a burden. Military personnel face a continual temptation to become overreliant on space-based systems.

Surveillance satellites

When the United States and USSR began their space programmes in the late 1950s, both placed projects to develop orbiting surveillance platforms among their first priorities. The United States Air Force launched its first operational observation satellite in 1961.[8] Strategists virtually always find it useful to look down on rivals – or whatever else happens to interest them – from above. The fact that western military planners of that period had few reliable sources of information within the hostile Soviet Union made space-based surveillance particularly valuable to them at that time. Reconnaissance satellites permitted western strategists to find Soviet airfields, missile

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silos, military bases, industrial complexes and other assets. This allowed western strategists to choose targets for their nuclear forces. Satellites also allowed western strategists to map even the most remote portions of Soviet territory. This would have made it possible for western forces to guide bombers and missiles to those targets with great precision.

Space-based systems can also detect enemy missile launches sooner than ground-based radar, giving friendly strategists extra minutes in which to respond – probably by launching missiles of their own – before the incoming warheads strike their targets. Without such early warning systems, all nations would be highly vulnerable to a nuclear surprise attack. On a more benevolent note, surveillance satellites made it easier for the Cold War rivals to negotiate arms control treaties. Space-based observation helps all parties assure themselves that their opponents are abiding by such agreements without requiring any country to accept visits from human inspectors or overflights by air-breathing aircraft.

Contemporary reconnaissance satellites can photograph objects on the earth's surface to a resolution of a few centimetres. This means that they can distinguish among objects no more than centimetres apart. By using ultraviolet and infrared imaging systems, satellites can detect details that may not be apparent in visible light. Certain types of infrared photography, for instance, can identify heat sources against cold backgrounds – such as the wake of a ship at sea, or the plume of exhaust from a missile in flight.

Satellites can also use imaging systems known as synthetic aperture radars (SARs). Technologically advanced SARs can achieve resolutions of between one and two metres. In other words, such systems can pick out objects as small as a ground vehicle, but it may not be able to determine whether the vehicle is a tank or a truck. SAR satellites require a great deal of electricity, and must often rely on nuclear generators.

Satellites can also intercept radio transmissions. As wireless communication becomes more common for a wider range of applications, space-based electronic intelligence platforms become capable of eavesdropping on an increasing variety of transmissions. Additionally, ocean surveillance satellites intercept emissions from electronic equipment on-board ships to find and track vessels at sea. In the 1980s ocean surveillance systems based on emissions interception could locate ships to within two kilometres.[9] One can achieve higher levels of accuracy by combining data from multiple satellites, and by supplementing passive electronic interception systems with SAR. Not only do ocean surveillance satellites have obvious applications in large-scale naval warfare, they help detect vessels operated by pirates, smugglers and terrorists.

Small wonder that, during the Cold War, approximately 40 per cent of all satellites launched were observation platforms of one type or another.[10] Nevertheless, despite all the surveillance equipment America and its allies placed in orbit, the Soviet Union apparently managed to build and deploy over 12,000 nuclear weapons in secret.[11] Western analysts did not learn of these weapons until the head of Russia's Ministry of Atomic Energy revealed it in 1993. Almost a decade later, surveillance and information-processing technology of all types had improved dramatically, but Serbia still managed to embarrass the combined efforts of America, Great Britain, France, Germany and the other western powers to find and destroy its military hardware in the Kosovo War of

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1999. Media sources suggest that western forces fired over 3000 precision-guided weapons but destroyed fewer than 50 Serbian tanks.[12] Several reports place the number of tanks destroyed at under 13.[13]

The same measures that help armed forces deceive observers operating within the earth's atmosphere work against spacecraft. Serbia concealed its armoured vehicles from western satellites using much the same combination of camouflage, decoy equipment, electronic warfare, secret agents and artfully leaked falsehoods that Britain and America used to deceive Nazi Germany about their plans to invade Normandy in 1944. Surveillance satellites cannot see through solid objects. Satellites that photograph the earth's surface using visible light cannot see through clouds either; neither can they function at night. Although infrared sensors and SAR are somewhat more versatile, they produce lower quality images at lower resolutions.

Resolution and image quality are critical, since even the clearest satellite images can be difficult to interpret. Computers running pattern recognition software can help – but they can also lead users astray. When images are poor and the situation under observation is complex, even the most skilled analysts will make mistakes. This is as true for satellites that intercept electronic emissions as it is for those that produce visual pictures. Smugglers and pirates, for instance, can evade maritime surveillance satellites by operating near islands, complex coastal features and crowded shipping lanes.

Moreover, imaging satellites can only survey a miniscule portion of the earth's surface at a time. Surveillance satellites suffer from a problem familiar to anyone who has used binoculars or a telescope – the more one magnifies an image in order to make out details, the smaller one's field of vision. Even after a satellite has collected information, it must transmit those data to earth. As satellites scan large areas at high resolutions, the volume of data outstrips the capabilities of most radio transmitters. For this reason, early surveillance satellites took pictures on photographic film and dropped the exposed film back to earth in specially designed capsules. Both the United States and Soviet Union continued to use this method until the 1980s, if not longer.

Communications technology has improved enough to allow satellites to transmit high-resolution photographs by radio. Nations have enhanced their ability to receive large amounts of radio information from orbiting surveillance devices by launching dedicated communications platforms, known as relay satellites, to assist with the process. Nevertheless, transmitting images from space still consumes bandwidth, computer processing power and time. Even after one has the images, one still needs to interpret them. This is also a time-consuming task – to examine a complete picture of North America or the Soviet Union at 10-centimetre resolution would, according to one estimate, require between 10,000 and 100,000 person years.[14] Also, as noted earlier, photo interpretation requires a high degree of skill, and trained analysts are practically always in short supply.

The laws of physics further limit the capabilities of space-based surveillance systems. Like other types of satellite, reconnaissance platforms can operate in a variety of orbital paths. Different paths offer different combinations of capabilities and drawbacks. A satellite designed to produce high-resolution images, for instance, needs to get as close to its target as possible. In order to get the highest quality pictures, one would normally launch such a satellite into an elliptical orbit that brings it as low as 150 kilometres over

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the areas one wishes to photograph.[15] One can also time the satellite's orbit to increase the frequency with which it arrives over its target during daylight.

Such an orbit, however, makes it relatively easy for enemies – or anyone else – to identify the satellite as an observation platform and determine what targets it is observing. Since satellites in this orbit go around the earth at a fixed rate of approximately once every 90 minutes, anyone who knows about the satellite will also be able to figure out when it will be overhead.[16] In 1999 this fact allowed the Serbs to hide their armoured vehicles from NATO airstrikes by displaying the vehicles prominently in certain locations while they knew that American satellites were watching and then moving the vehicles to safety elsewhere after they knew that the satellites had passed.[17] Also, each time the satellite descends over its target, it encounters drag from the earth's upper atmosphere. This will eventually slow it enough to degrade its orbit. When that happens, the satellite falls into the earth's atmosphere and burns, or, if large enough, crashes.

If one can accept lower quality images, one can place one's surveillance satellites in more circular orbits at higher altitudes. These satellites are easier to disguise, although all spacecraft have distinctive characteristics that will allow someone who is aware of those characteristics to identify them. For this reason, intelligence agencies prize data on the technical specifications and operating procedures of other countries' surveillance satellites. If one can afford to operate at much higher altitudes, one can place surveillance satellites in a geosynchronous orbit, ensuring that it has a perpetual view of specific parts of the earth's surface, or in a sun-synchronous orbit, ensuring that it will always be over areas illuminated by daylight.

Since geosynchronous orbits are too high for most surveillance purposes, those who wish to gather strategically useful information from space must normally resign themselves to the fact that no individual satellite can be present over the areas that interest them for more than a brief period of time. As noted above, most surveillance satellites go around the earth at a rate of once every 90 minutes. To complicate matters further, as the satellite goes around the earth, the earth rotates beneath the satellite. Therefore, a satellite will only be available to observe a chosen location on the planet's surface when its orbit and the earth's rotation coincide. For satellites in most suitable intelligence-gathering orbits, this will take place at fixed times twice in a 24-hour period, once in daylight and once in darkness.[18]

The fact that satellites only visit their targets intermittently makes it difficult to use them to obtain timely information about rapidly developing situations. Moreover, unless one has positioned a satellite to pass over the area one happens to be interested in, one cannot observe it from space at all. Although it is technically possible to equip a satellite with engines so that it may move from one orbital path to another, this takes time and (generally) irreplaceable fuel. If a crisis breaks out in an unexpected area, satellites may prove at least temporarily unavailable.

One can partially solve these problems by launching large numbers of surveillance satellites, to cover as many areas for as much of the time as possible. The most reliable way to get satellites where one wants them, when one wants them there is to launch new ones into the orbits that will be most useful at the moment. This is one reason why the Soviet Union went on using surveillance satellites with relatively short lifespans even

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after it developed the technical ability to build platforms that would function for longer. By continually launching new spacecraft, the USSR could maximise its chances of having satellites available to view whatever areas interested its strategists the most at any given time. Iraqi dictator Saddam Hussein took much of the world by surprise when he invaded Kuwait in 1990, but Soviet analysts, who had possessed the foresight to launch the reconnaissance satellite Cosmos 2089 into an orbit suitable for imaging the Persian Gulf region only 10 days before, were well equipped to monitor the unfolding Gulf War.[19]

In the twenty-first century, western space power advocates have become interested in developing so-called tactical satellites, which they could launch or reposition rapidly to maximise coverage of fluid situations. Twenty-first-century electronic technology would make it possible for such spacecraft to be cheaper than earlier generations of surveillance satellites. Contemporary technology also allows them to be smaller, making them easier to launch at short notice, possibly from ships or aircraft. Nevertheless, even the smallest, cheapest tactical satellites are likely to remain too costly for any power to deploy in large numbers, and the ability to use spacecraft to track battles in real time remains out of reach.

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Space weapons

For as long as people have had space programmes, people have experimented with weapons designed to destroy enemy spacecraft. The USA began to research anti-satellite (ASAT) devices in 1956 – almost a year before anyone possessed any satellites to shoot down.[20] America went on to place token numbers of Thor and Nike-Zeus anti-ballistic missiles in readiness for anti-satellite missions between 1964 and 1976. Moscow deployed rockets carrying anti-satellite satellites at launch sites throughout the Soviet Union in 1971 and may have used a laser to blind American surveillance satellites on selected occasions.[21] America countered in the 1980s by testing a device known as the miniature homing vehicle (MHV). Fired from an aircraft, this weapon could navigate into an enemy satellite's path and destroy it in a collision. The People's Republic of China tested an anti-satellite missile in 2007 and may be experimenting with co-orbital anti-satellite satellites as well. (For a definition of co-orbital anti-satellite weapons, see Box 10.2.) In 2008 the United States destroyed one of its own satellites with a ship-based weapon adapted from its missile defence programme, officially to prevent the defunct satellite from crashing with its load of toxic hydrazine fuel, but quite possibly to remind potential opponents that it can match China's ASAT capabilities.

Box 10.2 **Types of ASATS**

There are a variety of ways to destroy enemy satellites. The three that weapons designers have researched most extensively are known as co-orbital satellites, direct ascent weapons and directed energy weapons. All are more useful if they are small enough to base on mobile platforms such as ships or aircraft. If an ASAT

system is mobile, it can be moved to whatever location offers the best shot at a particular target at a particular time. Those who rely on static ASAT systems may have to wait longer until the satellites they wish to attack reach a vulnerable point in their orbit.

A co-orbital weapon is a vehicle designed to approach an enemy spacecraft, orbit alongside it for a specified period, and then take some action to destroy it. In the 1950s and 1960s, the US Air Force developed plans for a co-orbital weapons platform that would have shot at its targets using a rocket launcher. The Soviet Union used co-orbital satellites in its operational ASAT system. Rather than relying on rocket launchers, Soviet co-orbital vehicles merely drew close to their targets and exploded.

Direct ascent weapons are missiles or other projectiles that fly right to their targets, in a straight or parabolic path. The anti-satellite missiles America actually deployed in the 1960s and early 1970s were direct ascent weapons. Since they were not particularly accurate, they carried nuclear warheads. When the USA tested these warheads, it discovered that nuclear explosions at high altitudes generate an electromagnetic pulse that can damage all satellites and earth-based electronic equipment throughout a wide area, friendly and enemy alike.

For this reason and many others, all countries have abandoned nuclear ASATS. Contemporary direct ascent weapons are accurate enough not to need such warheads. America's later ASAT weapon, the miniature homing vehicle, was a direct ascent device, as was the Standard Missile it used against a satellite in 2008. The ASAT which China tested in 2007 was a direct ascent weapon as well.

Weapons designers have considered the possibility of using magnetic devices known as railguns to accelerate small pieces of metal to high speeds and fire them at satellites. This would be a direct ascent weapon of a sort. Such weapons, however, would require extraordinary amounts of energy, and practical anti-satellite railguns remain to be developed.

Directed energy weapons fire lasers or beams of subatomic particles at their targets. Both types of directed energy can burn enemy hardware, and particle beams can disrupt electronic equipment even if they fail to destroy it. Directed energy weapons can also strike at the speed of light. Other forms of ASAT, by contrast, may take hours to reach their targets.[22] During this time, the ASAT weapon itself is vulnerable to attacks by enemy ASATs.

Although the technology to build directed energy weapons exists, it remains difficult to generate enough energy to allow these weapons to damage distant targets. Clouds and other weather phenomena may also interfere with such weapons' performance – which is one reason why the USSR considered deploying them above the atmosphere on orbiting battle stations. One may also equip satellites with protective shields to help them resist this type of weapon. For these reasons, directed energy weapons have been more useful for dazzling sensors on surveillance platforms than for actually destroying satellites.

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Despite all the interest in anti-satellite warfare, the USSR is the only country to have maintained an operational ASAT system of any size. The Union of Concerned Scientists believes that Russia continues to have at least part of that system in the twenty-first century.[23] Therefore, any discussion of how strategists might actually use ASAT systems to achieve long-term political goals must remain abstract. The very fact that only one power has chosen to develop a significant anti-satellite arsenal hints at the limitations of space weapons as an instrument of strategy.

One reason why nations have not exploited ASAT technology more extensively is that space warfare is politically controversial. Even in 1960, with Cold War antagonism at its height, the American Department of Defense ordered the US Air Force to stop publicly mentioning the possibility of equipping its proposed interceptor satellite with a 'kill capability'.[24] Arms control advocates have persistently sought treaties prohibiting weapons and military activities in space.

This squeamishness might seem strange, since space combat would normally be casualty-free. Those who resist the so-called weaponisation of space would counter that wars which begin in space could easily develop into far bloodier wars on earth. Space weapons may also make accidental war more likely. Satellites often break down for unknown reasons, and when rival powers possess arsenals of space weapons, it becomes easier for their leaders to mistake such mishaps for enemy action. If, for instance, national leaders in a particular country suddenly lost contact with satellites designed to warn of incoming enemy missiles, they might well overreact.

Moreover, although there are currently few advantages in using orbital platforms to bombard enemies on the earth's surface – ballistic missiles can hit the same targets with fewer technical complications – arms control advocates would prefer to ban space weapons before anyone is tempted to develop a real-life version of George Lucas' Death Star. There are also more mundane reasons to oppose space weapons. Each time one tests or uses such devices, one leaves debris in orbit. This debris can damage or destroy unintended satellites. The area around the earth is already polluted with such space junk, and everyone who launches satellites has a common interest in minimising the amount of it.

Box 10.3 **Fractional orbital bombardment systems**

Military thinkers of the 1960s discussed the possibility of placing nuclear weapons in orbit, for use against earth-based targets. Soviet Premier Nikita Khrushchev repeatedly threatened to do this. Nevertheless, as the text notes, there are drawbacks to basing nuclear delivery systems in space. This method of deploying weapons would be expensive, the consequences of any accident could be extreme, and since space-based platforms would only pass over enemy positions at certain points along their orbital paths, ballistic missiles are normally able to hit a wider range of targets at shorter notice. This may help explain why the United States and Soviet Union were willing to sign the 1967 Outer Space Treaty, which banned weapons of mass destruction from space.

There is, however, a partial exception to these points. In 1969 the Soviet Union

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equipped intercontinental ballistic missiles at 18 locations to launch a nuclear delivery vehicle known as the OGCh Fractional Orbital Bombardment System (FOBS). Instead of going directly to its target, the FOBS was to pass part-way around the earth, and then, having completed a fraction of an orbit, descend on its victims from a presumably unexpected direction. In the late 1960s the FOBS could possibly have avoided detection by American early warning radars, allowing the USSR to carry out a successful surprise attack.

As the USA and USSR deployed surveillance satellites capable of detecting one another's missile launches, it became unlikely that either side could fire a FOBS without being noticed. Nevertheless, the victim of a FOBS attack would still find it difficult to predict what targets the incoming warheads were about to strike. This would complicate any attempts to plan a response, or to block incoming FOBS warheads with anti-ballistic missile defences. The USSR maintained its fractional orbital bombardment capability until 1983, when it dismantled the system in order to comply with the second Strategic Arms Limitation Treaty (SALT II). Moscow did, however, keep six former FOBS silos to launch permitted varieties of spacecraft.

Hypothetically, a country might improve on the FOBS by secretly placing weapons in orbit disguised as less threatening types of satellite. The orbiting weapons could then descend on their targets at some later time, without attracting attention from satellites designed to detect new missile launches. Although orbital weapons of this type would be less efficient than intercontinental ballistic missiles in most ways, they might be capable of taking their victims by surprise. There is, however, no evidence that any country has developed orbiting weapons of this type. Moreover, if such weapons used nuclear warheads, they would violate the Outer Space Treaty.

Another reason why most nations have refrained from deploying large-scale ASAT systems may be that while the cost of developing space weapons is high, the benefits of possessing them can easily seem remote. By 2009 the most advanced anti-satellite weapons ever tested had been unable to reach targets higher than a few thousand kilometres. This leaves communications and early warning satellites in geosynchronous orbits far out of reach. Twenty-first-century navigation satellites – including those of the GPS – also typically orbit beyond ASAT range.

Most surveillance satellites are vulnerable to ASATs. Some communications satellites operate at low altitudes as well. Unfortunately for those who wish to wage space warfare, developed space powers such as China, Russia and the United States have more satellites of these types than currently feasible ASAT systems would be able to shoot down. (Emerging space powers, which depend on smaller numbers of less technologically advanced satellites, might be more vulnerable – China's ASAT tests present only a modest challenge to America, but Indian defence planners may find them of greater concern.)

There are still moments at which strategists might wish to blind selected surveillance

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satellites before they observe some particularly sensitive activity. The USSR may have used its anti-satellite laser for this purpose. Strategists might also wish to combine strikes against satellites with attacks on other targets to disrupt enemy operations as much as possible in an all-out war. If the war involved maritime operations, ocean surveillance satellites would be particularly tempting targets. Objects in *molniya* orbits are vulnerable to ASATs as they swing towards the earth – which may be another reason why the USSR based its military space programme on launching large numbers of relatively expendable satellites. Nevertheless, under the technological and political conditions of the early twenty-first century, there are unlikely to be many occasions in which shooting down modest numbers of low-orbiting satellites would, by itself, achieve significant advantages.

As technology improves, ASATs may become more useful and countermeasures to protect spacecraft from enemy ASATs may become more necessary. There is no reason why one could not develop a weapon to attack platforms in higher orbits. The USSR made progress towards developing a missile capable of reaching geosynchronous satellites in the 1980s.[25] Soviet researchers also explored the idea of attacking high-altitude spacecraft by firing laser beams from orbiting battle stations.[26] Since early twenty-first-century navigation, early-warning and communications systems depend on small numbers of platforms in widely known orbital paths, a high-altitude ASAT with even rudimentary capabilities could have devastating effects.

Advances in so-called smallsat technology could also make space warfare more feasible. Smallsats are miniature versions of larger satellites, based wherever possible on existing technology. The fact that they are physically small makes them cheaper and easier to launch. The fact that they make greater use of commercially available hardware makes them cheaper to build.

As noted earlier, satellite designers have considered using smallsat technology to develop so-called tactical satellites, which armed forces would launch to support particular operations. Most proposed tactical satellites would operate in low orbit, and no nation would be likely to deploy more than a few at a time. Therefore, enemy forces could realistically hope to neutralise the tactical satellites by shooting them down. Moreover, smallsat technology could make co-orbital anti-satellite devices cheaper and easier to launch in larger numbers, further reducing the barriers to space warfare. The People's Republic of China appears to be working on miniaturising co-orbital ASATs, and the US Air Force's experimental smallsat XSS-11 could serve as a prototype for a weapon.

Meanwhile, if one is to take any countermeasures against enemy space capabilities at all, one needs to know what satellites one's potential opponents possess. The 1975 Convention on Registration of Objects Launched into Outer Space requires nations to report all space launches to the United Nations. Historically, however, nations have interpreted this convention loosely. As of 1990, neither the US nor the USSR had reported launching a single satellite for military purposes.[27] Therefore, most space-faring nations have deployed extensive networks of land and ship-based sensor systems to find and track space objects as thoroughly as possible. One may safely assume that most nations supplement these networks by using surveillance satellites to monitor one anothers' launch sites, and by practising more traditional forms of espionage. As space

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operations assume an increasing role in warfare, these monitoring systems are likely to prove even more critical than ASATs.

Conclusion: lost in space?

Up until now, this chapter has focused on the specific ways in which strategists use specific types of satellite. Space technology also raises more general issues for strategic theorists. The broadest of these issues may be the question of whether or not strategists need a distinct theory of space power at all. For all their importance, satellites do practically nothing on their own. Military satellites exist to support forces operating within the atmosphere, and the functions they perform for those forces may not appear to have enough in common to sustain a coherent theory of space power as separate from power in its more familiar forms.

Nevertheless, military and political leaders must craft distinctive policies that will affect their ability to use space assets of all types. Such leaders must, for instance, decide what proportion of their resources to invest in space programmes, and which programmes to invest in. Some of these decisions will have particularly far-reaching consequences. Political leaders' choice of a launch system, for instance, will affect their ability to deploy satellites of all types, as will their decisions about where to site launching facilities. Choices about which forms of emerging technology to invest in may also have far-reaching effects.

Just as political leaders must decide what space capabilities to invest in, military leaders must decide how to allocate those capabilities during operations. This gives urgency to the theoretical question about whether or not space power is a distinct branch of warfare requiring distinct strategic concepts. If one believes that satellites are merely new tools for the ground, sea and air forces, one may wish to divide responsibility for one's satellites among army, navy and air force commanders. If, however, one believes that space operations raise unique problems and reward a unique approach, one may wish to place all one's satellites under the control of a unified space command structure.

If one plans to use ASATs in a systematic effort to destroy enemy space capabilities, a centralised space command becomes almost essential. A centralised command structure may be almost equally important if one needs to implement comprehensive defensive measures against hostile ASATs. Thus, in 1948, the American Air Force general Hoyt S. Vandenberg called for a unified space command under the ultimate control of the Air Force.[28] America has, indeed, adopted such a system.

As of the early twenty-first century, the results of the US system have been mixed. ASAT duels demanding a centrally coordinated space strategy remain hypothetical. Commanders from other branches of the American armed services continue to complain that they have difficulty getting support from satellite assets when they need it. Meanwhile, the armed services of emerging space powers have begun to debate similar issues. India, for instance, recently placed its military space assets under the control of an Integrated Space Cell, and Indian leaders have contemplated merging both air and space assets into an Aerospace Command.

Another reason why strategists may need to develop a unique theory of space power

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is that different countries experience different advantages and disadvantages when using satellites. Northerly countries, for instance, find it more expensive to launch satellites into equatorial orbits, and, as noted earlier, may not be able to use geosynchronous communications platforms as effectively. Moreover, certain regions of space have particularly great significance – the zone in which a satellite can maintain a geosynchronous orbit is an obvious example.

These critical regions of space are already crowded with satellites and space junk. Space powers may soon come into conflict over the right to launch new satellites into them. By the same token, one must assume that any space power that uses ASATs will try to deploy them in such a way as to gain maximum influence over these critical regions. Plans for space warfare – like more familiar forms of strategic planning – must take geography into account.

Since launching and maintaining space systems is expensive, space strategy must also take economics into account. Space strategy may have to take a government's ability to form and sustain long-term policies on such matters into account as well. To develop a successful space programme, a country must foster skilled scientists and technicians – and, thus, space strategy may involve basic questions about how a society views science and how it educates its young people. This, in turn, raises the question of whether certain countries with certain cultures and certain political institutions are natural space powers – and, if so, how others might wish to respond.

In the nineteenth century, Alfred Thayer Mahan noted similar points about strategy at sea. Thus, space power theorists often look to sea power theorists for inspiration. Since Mahan's ideas remain controversial more than a century later, one must give space power theorists credit for making as much progress as they have over a few decades. Nevertheless, although space power theory remains in its infancy, political leaders must make strategic decisions about space power now. Moreover, our theories about the ways in which strategists might take advantage of twenty-first-century information technology can only be as good as our ability to maintain access to the space resources that make so much of that technology possible.

Key points

1. Satellites allow people to transmit unprecedented amounts of information to and from almost any location on earth with unprecedented reliability. Nevertheless, no one type of communications satellite is fully satisfactory. There are different kinds of communications satellite that follow different orbital paths, and each one has special advantages and disadvantages.
2. Contemporary satellite navigation systems, of which America's global positioning system is the most developed example, simplify a wide range of critical problems for those who must mount military operations.
3. Indeed, satellite navigation systems are so valuable that one of their main drawbacks is that they tempt users to become excessively dependent on them. Since these require maintenance and are vulnerable to radio interference, it is unwise to assume that they will always be available at full accuracy.

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4. Surveillance satellites performed indispensable functions for western countries during the Cold War and remain invaluable today. Nevertheless, they remain vulnerable to countermeasures, and they are not always available at the times and places where one might want them.
5. Although various countries have developed functioning anti-satellite weapons, few have invested in deploying them on a large scale. One reason may be that, by 2009, such weapons remained unable to strike many of the most important satellites. Another reason may be that these weapons are both expensive and politically controversial.
6. Military thinkers continue to debate the question of who should be responsible for allocating access to space assets to commanders of atmosphere-based forces.
7. The factors that help nations develop space power appear to parallel the factors that help nations develop sea power.

Questions

1. **How actively should countries seek a treaty banning all space weapons?**
2. **How useful are anti-satellite weapons under early twenty-first-century conditions?**
3. **Who is most likely to find anti-satellite weapons useful?**
4. **What role can space assets play in attempts to suppress terrorism?**

Further reading

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Part 3

Contemporary strategic challenges

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11 Nuclear strategy

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Reader's guide: The technical characteristics of nuclear weapons and their means of delivery; the development of nuclear strategy during the 'Golden Age' (Cold War); contemporary strategic thinking on nuclear weapons; nuclear strategy for the twenty-first century.

Introduction

Since their first use in 1945 nuclear weapons have arguably posed the greatest challenge to modern strategic theorists and practitioners. Put simply, the scale of the challenge emanates from the enormous destructive power of these weapons. When nuclear warheads were placed atop ballistic missiles with flight times measured in minutes, the challenge was magnified. In an age of thermonuclear ballistic missiles, global devastation was potentially only minutes away. The challenge for strategists was how to harness such awesome power for strategic effect. This was made even more problematic by the security environment of the Cold War, in which suspicion and fear of surprise attack were prevalent. In response to these challenges, the intellectual endeavour devoted to nuclear strategy gave rise to the modern academic subject of strategic studies. It may not be too far-fetched to say that this very book (written by two civilian academic authors) would not have been written were it not for the invention of nuclear weapons.[1] This chapter will begin by outlining the basic characteristics of nuclear weapons and their delivery systems. The essence of nuclear strategy cannot be understood without some sense of the weapons themselves. This is one occasion in strategy where the technology of the weapons systems has a direct impact on the formation of strategy. Having provided this technological backdrop, the chapter will then analyse the rich history of Cold War nuclear strategy. This so-called 'golden age' of strategic thought witnessed the development of most of the core concepts in nuclear strategy. Indeed, strategy in general benefited from the intellectual endeavours of the period. To cite one example, Thomas Schelling's work on the strategy of conflict has relevance well beyond the Cold War nuclear context.[2] The focus of the chapter is predominately on the United States, mainly for methodological reasons. In particular, it is because the United States produced the most developed and open forms of nuclear strategy. However, reference is also made to Soviet, British and French nuclear strategy. The chapter will conclude with an assessment of current strategic thought on nuclear weapons. It will be argued that, aside from a few notable exceptions, nuclear

strategy has become the poor second cousin since the end of the Cold War. That being the case, the chapter will conclude with a modest attempt to formulate a theory of nuclear strategy for the modern age.

The technology of nuclear weapons

Nuclear weapons first came to public attention with the atomic attacks on the Japanese cities of Hiroshima and Nagasaki in August 1945. Both attacks involved the use of just one bomb, and still represent the only use of nuclear weapons in anger against an opposing power. The attack on Hiroshima used a fission device with a yield of approximately 13 kilotons.[3] It was delivered to its target by a single B-29 bomber, which took approximately six and a half hours to reach its target from its base at Tinian Island. The devastation caused by the attack was substantial, destroying most of the city and killing at least 80,000 people. The challenge of Cold War nuclear strategy is clear then when one considers that the Minuteman I and II Intercontinental Ballistic Missile (ICBM), which saw service from 1963 to 1993, had a warhead (the W-56) with a yield almost 100 times as powerful as that used at Hiroshima, and a flight time of approximately 25 minutes. The challenge was further intensified by the vertical proliferation of nuclear weapons. The United States' nuclear arsenal peaked in 1966 with 31,700 warheads, and by 1986 the Soviet Union had 40,723.[4] The means of delivery also proliferated, and eventually included mortars, artillery shells, bombers, submarine-launched ballistic missiles (SLBMs) and their land-based ICBM cousins.

The destructive power of a nuclear warhead is quantified in the equivalent tonnage of TNT explosive. Thus, the bomb that destroyed Hiroshima had a yield that was the equivalent of 13,000 tons of TNT. The yield of the Minuteman W-56 warhead was the equivalent of 1.2 million tons of TNT. The energy released when a nuclear weapon is detonated comes in three different forms: blast, heat and radiation. The percentage of each of these outputs is dependent on the manufacture of the weapon. As an example, the enhanced radiation weapon (neutron bomb) was designed to produce a high proportion of its energy as neutron radiation. Although such a weapon has a reduced yield in terms of destructive power (blast and heat), it was intended to be most useful as an anti-armour weapon, with radiation penetrating a vehicle's armour to kill the troops inside. There is one additional effect created when a nuclear device detonates, although it does not directly emanate from the weapon itself, but rather occurs when the energy released interacts with the atmosphere: an electromagnetic pulse (EMP). The main attribute of an EMP is its ability to destroy electrical circuits.[5] Thus, among other effects, EMP has serious implications for command-and-control infrastructure.

As noted, there are various means of delivering a nuclear warhead to its target. On the battlefield smaller yield nuclear weapons can be delivered by mortars, artillery shells, short-range missiles and air-delivered bombs. The delivery means for longer ranges typically come under the umbrella term the 'nuclear triad', which comprises aircraft, SLBMs and ICBMs. By varying the means of delivery, the nuclear triad was designed to ensure a response in the aftermath of a surprise enemy attack. If, for example, the enemy found a way to destroy one's bomber force and land-based ICBMs, it was hoped the SLBMs would avoid destruction and provide a means of retaliation.

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SLBMs deployed in modern nuclear-powered submarines (SSBNs) are particularly suited to this task because they are difficult to locate and track. Within the other two arms of the triad various methods were developed to increase survivability of the forces. For example, during the Cold War the United States operated a policy of airborne alert, whereby a number of bombers were kept constantly in the air, thereby reducing their vulnerability to a surprise attack. In an attempt to protect the ICBM force, ICBM silos were hardened and dispersed, and eventually mobile ICBMs were developed. Finally on the issue of delivery, it should be noted that nuclear weapons can be delivered by less technologically sophisticated means, such as in the back of a car or by various other methods that employ the infamous 'suitcase nuke'. Such rudimentary means of delivery would be ideally suited for use by either special forces or terrorists.

An area of development that received much attention during the Cold War was that concerned with the offence–defence dynamic. Various anti-ballistic missile (ABM) programmes were developed, and some were even deployed in limited numbers. However, despite such efforts operational advantage always lay with offensive forces. The number of warheads involved, their destructive power and the short flight times of the missiles ensured that constructing a reliable enough defensive system (one that was almost leak proof) was essentially impossible. The basic challenge of ballistic missile defence (BMD) in the Cold War was made more difficult by technological developments in offensive systems. Offensive capabilities were enhanced with the introduction of multiple independently targeted reentry vehicles (MIRV). This system refers to a ballistic missile that has multiple warheads (perhaps as many as 10), each of which can be assigned to a distinct target. In addition to the warheads, a missile would also carry penetration aids, such as chaff and decoy warheads to further complicate the defensive mission. Finally, with improved guidance systems nuclear weapons became increasingly accurate, thus improving the chances of destroying the intended target with fewer warheads. The overwhelming challenge of the defensive mission is evidenced in the colossally expensive and complex multilayered strategic defence initiative (SDI), first announced by the Reagan administration in 1983. SDI envisaged both earth- and space-based components, and was designed to include exotic directed-energy technologies.[6] Even if such technologies could have been developed within a reasonable timeframe and at reasonable cost, the command-and-control issues in the face of a large Soviet attack may have presented insurmountable problems.

Once a warhead reaches its target there are a number of attack options available. The warhead can be air burst, ground burst, or can even penetrate into the earth. Air-burst weapons are better suited against area targets, such as urban areas, whereas the ground-burst option is advisable against point targets such as enemy missile silos. The latter does, however, produce more fallout since it drags up material from the ground, which is then irradiated in the mushroom cloud before falling back to earth, often at great distances from the actual explosion. Finally, penetrating warheads are designed to destroy buried targets, such as underground facilities.

A critical component of any nuclear force is its command and control. Due to the marriage of destructive power and rapid delivery, the command-and-control system of nuclear forces must be robust and responsive. In the face of an actual or imminent enemy attack, it is vital that the attack order for one's own forces gets through to the

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respective launch crews in time. However, this need to be responsive must be balanced with a requirement to be responsible. Certainly, one wants to be able to command one's nuclear forces; but one also desires to be in control of them at the same time. Those designing command-and-control systems and procedures must find a balance between responsiveness and restraint. When dealing with such high stakes and short timelines, the accidental launch of nuclear weapons is a real danger.[7] This particular challenge raises questions about when one should actually launch a nuclear retaliatory strike. Does one pre-empt the enemy's attack? Does one launch on warning (when the early-warning systems detect a possible enemy attack in its early stages)? Alternatively, does one launch under attack (only respond when the enemy's warheads have begun detonating on your territory)? Responding to these, and other questions that arise from the technical characteristics of nuclear weapons, dominated strategic studies for much of the Cold War. This chapter now turns its attention to the details of those responses.

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Nuclear strategy during the Cold War

Whatever form nuclear strategy took, the central challenge was always the same and can be summarised by the title of Henry Kissinger's work *Nuclear Weapons and Foreign Policy*.[8] In essence, the story of nuclear strategy is about harnessing the enormous destructive power of nuclear weapons in the service of rational policy objectives. It is an attempt to apply Clausewitz in a context where some believe Clausewitzian rules are inapplicable. Lawrence Freedman, for example, raises the question of whether nuclear strategy is a contradiction in terms.[9]

Although nuclear weapons were first utilised for strategic effect in an offensive manner, the initial intellectual engagement with the subject established deterrence as the concept that would dominate the subject of nuclear strategy. The American strategic theorist Bernard Brodie set the tone for the next 45 years when he noted in the immediate aftermath of Hiroshima:

> Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose.[10]

The strategic theory and practice that followed on from Brodie's work, with some notable exceptions, is best regarded as the development of ever more sophisticated forms of deterrence.

Box 11.1 **Nuclear deterrence**

Two forms of deterrence

Punishment – threaten to impose costs on the enemy that outweigh any gains he would make from his actions.
Denial – threaten to prevent him from achieving his objectives.

Credible deterrence requires:

Capability – the military capability to punish or deny.
Commitment – the will to enact a deterrence threat.
Communication – the enemy must clearly understand that you possess the capability and commitment.

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The following analysis will show that initial positions on nuclear strategy (massive retaliation and mutually assured destruction) were too basic. In particular, they lacked flexibility, credibility, and ruled out any real prospects for fighting and winning a nuclear conflict. In response, theorists and practitioners endeavoured to construct more credible limited options for nuclear strategy. In this pursuit, they contemplated nuclear strategy as a form of bargaining. They went further and developed warfighting options to increase the chances of surviving a nuclear conflict (damage limitation), and perhaps even emerging as victorious (prevailing). However, despite this shift towards warfighting in the later stages of the Cold War, deterrence was never abandoned in the United States' defence community.

A key question concerning nuclear deterrence is: 'do the details matter?' Minimum and/or existential deterrence theories deny that the details matter much, rather suggesting that the enormous destructive power of nuclear weapons simplifies the deterrence challenge markedly.[11] From these perspectives, simply having the weapons in sufficient numbers is enough to deter potential aggressors. Why would anyone risk military adventure in the face of such overwhelming destructive power? Or so the argument goes. In this sense, nuclear weapons appear to be the perfect instruments of deterrence. However, a 1959 RAND study, the results of which were published in Albert Wohlstetter's article, 'The Delicate Balance of Terror', made it clear that the details really did matter. Wohlstetter's group discovered that the United States' retaliatory forces were vulnerable to a surprise enemy first strike. Ownership of the weapons was not enough to ensure that a deterrent response would be automatic.[12] Nuclear weapons, it seemed, were akin to conventional weapons, in that tactical and operational issues were essential for positive strategic effect. Questions began to be asked on such important topics as basing, defence and penetration. A concept central to tactical and operational issues in nuclear strategy is 'second strike capability'. This refers to the ability to launch a devastating attack on the enemy even after absorbing an enemy first strike. To best ensure a second strike capability, one's forces have to be robust, numerous, and have diversified means of delivery.

Massive Retaliation and Mutually Assured Destruction

In some respects, the first declaratory nuclear strategy of the United States, 'massive retaliation', is indicative of the existential approach. In January 1954 the Eisenhower administration's Secretary of State John Foster Dulles announced that the United States would deter future Communist aggression by depending 'primarily upon a great

capacity to retaliate, instantly, by means and at places of our own choosing'.[13] Freedman notes correctly that massive retaliation was not as simple as it is often portrayed (threatening massive nuclear response to any Communist gains, however limited). Nonetheless, as Freedman goes on to argue, the administration did little to dispel this caricature, even though Dulles intended the policy to have short-term political leverage, rather than being the basis for the development of long-term nuclear strategy. In addition, it seems that the military had little guidance from the administration on how and when to use nuclear weapons.[14] Thus, even if administration officials were privately of the opinion that the details mattered, at least in the short term they were happy to opt for a simple declaratory deterrence policy, without worrying too much about tactical and operational matters. This simple reliance on nuclear weapons was influenced in part by the potential cost savings of nuclear deterrence relative to a substantial conventional build up. Whatever the motivation for massive retaliation, it left too many questions unanswered, and crucially failed the deterrence credibility test. In many respects, the strategic theory that emerged during the Cold War was a response to the issues raised by massive retaliation.

In deterrence, credibility is crucial. Those you wish to deter must believe that your threats are credible; otherwise they may call your bluff. Deterrence essentially comes in two, not mutually exclusive, forms: punishment and denial. The former seeks to deter an opposing power by threatening to impose punishing costs on it that outweigh any gains it may hope to achieve by its actions. Denial deters by persuading the opposing actor that you will prevent him from achieving his aims. In order to achieve credibility, a strategy of deterrence must fulfil the requirements of the so-called 'three Cs': capability, commitment and communication. Those wishing to deter must have the forces available to inflict the threatened punishment or deny the enemy their objectives. Ownership of the required forces is not enough, however. The enemy must also believe that you will use said forces when it comes to the crunch. Finally, the first two conditions must be effectively communicated to the enemy, either through words and/or deeds. At this stage it is worth pointing out that deterrence has one major weakness as a strategy: its success or failure resides with the enemy. He will choose whether or not to be deterred. In this respect, building your security policy on a foundation of deterrence is tantamount to relinquishing a degree of control.

The credibility of massive retaliation was most obviously open to question in relation to Soviet challenges of a limited nature. Certain plausible scenarios demonstrate this point. For example, would the United States respond with a massive nuclear attack in response to Communist gains in Korea? Alternatively, was the United States prepared to kill millions in response to Soviet-backed Communist electoral gains somewhere in Europe, perhaps Italy? The most likely answers to these questions were: probably not and almost certainly not, respectively. That being the case, the United States and its allies faced the danger of being nibbled to death by Communist encroachment, while NATO's nuclear weapons sat impotent on the sidelines.

The credibility challenge was less of a problem in relation to a Soviet attack on the United States' homeland.[15] However, as the leader of the free world the United States had global interests and thus had to 'extend' its nuclear deterrence to its allies. The credibility problems associated with extended deterrence quickly came to the fore when the

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Soviets tested their own nuclear weapon in 1949. By the 1960s, when both sides had the ability to inflict massive amounts of destruction on one another, the question of credibility became acute. It was at least questionable, if not unlikely, that the United States would commit suicide over West Germany or Japan, to cite just two examples of extended deterrence from the period. Herman Kahn was correct in his assessment that deterrence is neither easy nor automatic. Just as importantly, for a global power such as the United States, deterrence must operate successfully in a range of different contexts.[16]

As the Soviet and American nuclear arsenals increased, a point was reached in the 1960s when mutually assured destruction (MAD) became an accepted reality. Although often regarded as a strategy, MAD was actually more an acceptance of a state of affairs brought about as a consequence of the arms build up.[17] However, intended or not, to its supporters MAD appeared to offer a near perfect stable deterrence relationship between the two superpowers. With a nuclear triad force structure in place on both sides, and second strike capabilities seemingly assured, it looked as if a stable condition had been reached. Stability was based on the premise that neither of the superpowers would risk a first strike in the knowledge that they would be destroyed in response. Attempts were made to cement the MAD state of affairs. The most notable of these attempts was the 1972 ABM Treaty, which ensured the dominance of retaliatory systems by severely restricting the development and deployment of ballistic missile defences.

However, MAD was potentially flawed. Conceptually, there was little agreement between the superpowers over what constituted 'stability'. Without an agreed definition of stability, it would be difficult to maintain it. For many, especially those engaged in arms control negotiations, stability was often defined in technological terms. In this respect, weapon systems, in both qualitative and quantitative terms, could be graded as either stablising or destablising. Unfortunately, this somewhat narrow approach to the question of stability underplayed the vital political component of a stable relationship.[18] Stability calculated purely along technological lines may be based on a false premise. Put under pressure by severe political antagonism, stability may have crumbled. MAD also seemed to offer a very narrow approach to nuclear strategy. Although it appeared to work well as the basis for deterring attack against the superpower homelands, it offered little else to the nuclear strategist. This was particularly troubling for the United States, which had global interests to defend against Communist encroachment.

Beyond MAD: limited and flexible options

Thus, although MAD seemed fairly plausible as a basis for deterrence vis-à-vis an attack on the American homeland, it caused untold problems for America's extended deterrence posture. None of the NATO powers, including the United States, was prepared to spend the vast amounts of money required to offset Soviet conventional supremacy in Europe. In which case, the security of western Europe would have to rely on successfully extending the American nuclear umbrella to the continent. There were essentially three options available to the United States in order to achieve this. The least credible of these options relied on persuading the Soviet Union that the United States was prepared to accept assured destruction of its homeland in order to save its European

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allies. Alternatively, smaller battlefield nuclear weapons could be deployed to neutralise Soviet conventional dominance. This second option proved problematic when it became apparent how difficult it would be to limit nuclear conflict. Once the nuclear threshold had been crossed in Europe, there was a strong possibility that a conflict would rapidly escalate to central nuclear war involving attacks against the superpowers. Therefore, the second option clearly had a direct relationship with the first, and suffered from the same credibility shortfalls. However, the third option, which is best described as a merger of the first two, actually relied on the possibility of escalation to MAD as a means to manipulate the enemy's actions and force him to compromise his position.[19] This last option (detailed below) produced some of the most sophisticated nuclear strategy of the period. Nonetheless, it too had potential shortfalls.

In order to enhance the credibility of extended deterrence, from the early 1960s the United States began to develop a more flexible strategy than massive retaliation. In particular, they required more limited options. Such an approach became official policy when Flexible Response was formally adopted by NATO in 1967. In theory, this gave the alliance the capability of responding to Soviet actions at an appropriate level. The options available included purely conventional responses, limited nuclear options, and finally large-scale central nuclear war. However, there was a fine balancing act to be performed within such a strategy. Although it was intended that a conventional Soviet attack could be met in kind (thereby increasing the likelihood and credibility of response), it was important to keep nuclear forces in the equation. With their conventional superiority, the Soviets may have been tempted to chance their arm in central Europe. Indeed, even limited nuclear options (with the damage restricted to central and western Europe) may have been regarded by the Soviets as a price worth paying for certain territorial gains. Therefore, it was important to maintain the possibility of escalation to central nuclear war, with its attendant devastation of the superpower homelands. In this sense, the threat of MAD did support America's extended deterrence posture, but only via the route of limited options. As a direct threat, assured destruction lacked credibility as the basis for extended deterrence. However, it could be threatened indirectly as a by-product of limited response options.

The theorist Thomas Schelling incorporated such an idea into his theory the 'threat that leaves something to chance'. While demonstrating to a foe that you are able and willing to limit your response, thereby increasing the likelihood and credibility of that response, you also willingly accept that the conflict may escalate beyond your control. In a sense, Schelling was advocating that policymakers should sacrifice some level of control, and thereby limit their freedom of action. Being aware of this, an enemy would, it was to be hoped, limit his own actions for fear of a general loss of control over an escalating conflict.[20] This is clearly a high-risk strategy, which is intended to place the onus of compromise on the enemy. These ideas led to the development of two interesting subsections of the debate. First is the notion of treating nuclear strategy as a form of negotiation or bargaining. Second is the question of whether nuclear war could ever remain limited.

The development of nuclear strategy as a form of bargaining moved the subject well beyond the limits of existential deterrence, and not only produced more sophisticated forms of deterrence, but also began to perceive nuclear weapons as more nuanced and

flexible tools of strategy. Again, the works of Schelling and Kahn are particularly noteworthy in this area.

For Schelling, the process of nuclear bargaining was all about risk manipulation. To demonstrate this process, the game of 'chicken' is often utilised as an analogy. Chicken is a high-risk game of nerves in which two cars drive straight towards one another at high speed. The game is lost by the driver who is the first to swerve out of harm's way. The winner, therefore, appears more willing to run the risk for longer than his opponent. The key question in chicken, and perhaps also in nuclear strategy, is this: How do you ensure that it is the enemy who swerves/compromises first? One way to increase your chances of winning is to project an image of irrationality. If your opponent believes he is dealing with someone incapable of rational choice, he may feel compelled to act in a more controlled manner and initiate de-escalation. For example, in the game of chicken acts of apparent irrationality could include drinking alcohol before the game, driving blindfolded, or even removing the car's steering wheel. In a nuclear standoff, irrationality could be displayed via public statements or by the deployment of forces that are more liable to accidental launch. Aside from an image of irrationality, bargaining reputation, much of which is based on previous actions, is also important.[21] This last aspect of nuclear strategy is particularly pertinent today. As western leaders continue to promote a non-use, abolitionist agenda, they may be seriously harming their bargaining position in future standoffs involving nuclear weapons.

Herman Kahn produced what is probably the most detailed attempt to understand how nuclear weapons can be used as a form of negotiation to pressure an adversary. In its complete form, Kahn developed the 44-rung 'ladder of escalation' (see Box 11.2). Each rung of the ladder represents an increase in activity between two opponents. The object for each side in this relationship is to gain escalation dominance at the next rung of the ladder, and thereby put the onus on the opponent to back down. The ladder includes such rungs as 'demonstration of force', 'local nuclear war – military' and 'civilian devastation attack'.[22] Kahn's ladder is based on the premise that the threat or use of nuclear weapons can be carefully controlled for the purposes of manipulating the will and decisions of an enemy. Put simply, if one side can demonstrate dominance on the next rung of the ladder, the other may be forced to prevent further escalation and compromise his position.

Box 11.2 **Key rungs on Kahn's ladder of escalation**

Rung 5 – Show of force
Rung 16 – Nuclear ultimatums
Rung 23 – Limited nuclear war – military
Rung 34 – Slow-motion counterforce war
Rung 39 – Slow-motion countercity war
Rung 44 – Spasm or insensate war

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Although Kahn's work is an impressive attempt to construct a mature theory of nuclear strategy, it has been subjected to some fairly damning criticisms. Most obviously, it presupposes that both sides in a conflict will share the same ladder or at least understand how the other's ladder is constructed. Whereas, it seems at least plausible that culturally distinct actors will hold different views on what constitutes an act of escalation relative to other possible acts. That being the case, it is to be expected that one side may misinterpret the actions of the other. In a nuclear environment such misunderstanding could prove fatal on a global scale. However, although easy to criticise, Kahn was at least attempting to understand how the threat of nuclear use could be used for positive strategic effect. At the very least, Kahn's work raises important questions concerning the feasibility of controlling war in a nuclear environment.

The prospect of being able to wage limited nuclear war motivated much strategic thought during the Cold War. Indeed, it was a central component of Henry Kissinger's aforementioned work, *Nuclear Weapons and Foreign Policy*. For many, including Kissinger and Halperin, limited nuclear war was a possible means to harness the enormous destructive power of the weapons in support of policy.[23] At the very least, controlling the use of nuclear weapons seemed imperative as a means of escaping Armageddon should war occur. There had to be an alternative to surrender or destruction.

War can be limited in four main ways: weapons, geography, targets and objectives. In the case of nuclear weapons, a war may be limited by using warheads up to a certain yield. Kissinger suggested a rather large maximum yield of 500 Kt.[24] In the context of the Cold War, a nuclear conflict could be limited geographically by maintaining the superpower homelands as sanctuaries, free from the effects of nuclear warheads. Even if the Soviet Union and United States came under attack, limits could still be applied by avoiding civilian targets. Finally, limited objectives, which did not include subjegation or complete collapse of the enemy system, may have been a method to limit the means used in wartime.

Efforts to construct a theory of limited nuclear war appear rational and worthwhile. However, there are a number of key difficulties with each of the methods just described. As with Kahn's ladder of escalation, limited nuclear war requires a degree of mutual understanding and respect. However, this could be easily undermined if there were disagreement over the nature of an objective. For example, a small territorial gain for you may be the loss of a culturally or politically vital area for us. If we examine the four means of limitation in more detail, we see an ever expanding list of difficulties, which become more complicated when nuclear weapons are involved. If we take Kissinger's idea of capping the warhead yield, how can this be accurately judged in wartime? Does a 500 Kt detonation appear significantly different from a 550 Kt detonation? What should one side do if it believed the other had breached this limit? Actually, it may not be possible to limit the yield of a warhead to such an accurate degree. It is reported that the United States military often underestimated the destructive power of its own weapons. Thus, well-intentioned attempts to limit damage in a nuclear conflict may have been found seriously wanting in practice.

Geographically limiting the conflict is also complicated when nuclear weapons are involved. The effects of nuclear weapons, particularly fallout, are influenced by the

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weather. Thus, the size of the area affected by nuclear fallout will be somewhat random. Does fallout landing in the Soviet Union represent a breach of pre-war agreed limits? What if a key enemy target lies on the border of the geographical limits of the theatre of operations? The effects of nuclear weapons also make it difficult to avoid civilian casualties. How does one distinguish between military and civilian targets in and around urban areas? Would United States' decision makers realise that an attack on Washington, which killed millions of Americans, was actually an attack on the Pentagon? Would it matter even if they did realise this? What about the prospects for limiting war via restricted objectives? Is it possible to have limited gains and losses in the intensely competitive atmosphere of the Cold War?

As this discussion reveals, there are many challenges involved in limiting nuclear conflict. Further, this still presupposes that limits can be agreed. Perhaps agreed limits could be established through arms control and confidence-building measures. However, these processes are themselves fraught with difficulties, misunderstandings and suspicions (especially in the context of the Cold War). Finally, even if agreed limits are established, universally understood and physically possible, the effects of nuclear weapons (including EMP) may still destroy the whole enterprise by degrading command-and-control infrastructure. If forces cannot be adequately commanded, the notion of controlled exchanges of nuclear weapons is fanciful. Indeed, later versions of the United States' nuclear war plan, the single integrated operational plan (SIOP), included options to avoid targeting enemy command-and-control infrastructures, precisely to enable intra-war negotiation, war limitation and termination.[25] This brief analysis has revealed that although noble, rational, and perhaps even worthwhile, theoretical attempts to construct a strategy of limited nuclear war face a host of serious practical obstacles.

Nonetheless, war is a rational activity, and therefore attempts must be made to control it. Indeed, the impulse to control nuclear war (or at least control the outcome) can even be extracted from Schelling's work, despite the fact that he suggests advantage may be gained from exploiting the uncontrollable and escalatory nature of nuclear conflict. One could argue that manipulating the uncontrollable elements of nuclear conflict is actually an attempt to exert control over the uncontrollable. In the end, Schelling is actually proposing a very sophisticated, subtle form of control, albeit one that accepts the risk that control may be lost. Indeed, it is precisely that risk of loss of control that enables control over the situation vis-à-vis the enemy's actions.

Warfighting: damage limitation, countervailing and prevailing

Perhaps the most strident attempts to exert control over nuclear conflict belong to the warfighting school of thought. A warfighting posture seeks to develop both capabilities and plans to wage nuclear war in a controlled way, and perhaps even in a protracted manner. While warfighting can be an important part of a credible deterrence posture, it can also be seen as a means to go beyond deterrence and perhaps seek victory in a nuclear conflict. While certainly recognising the unique characteristics of nuclear weapons, warfighting also treats them as any other weapon is treated. Military instruments must be controlled as rational means to achieve policy objectives. In order to

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achieve this, tactical and operational details must be developed, and hopefully advantage can be gained relative to the enemy. Warfighting certainly rejects existential deterrence and argues strongly that the details do matter. It can also be seen as a responsible approach to nuclear strategy by developing options other than surrender or Armaggeddon. Perhaps most importantly, warfighting is concerned with answering the question: What happens if deterrence fails?

Box 11.3 **Nuclear warfighting**

Four objectives of nuclear warfighting

Enhance credibility
Damage limitation
Countervailing
Victory

There are essentially four objectives of warfighting. The first objective is to enhance the credibility of one's deterrence posture. As just noted, the credibility of deterrence rests heavily on other actors' perception of your willingness to act. Clearly, this credibility is at least open to question if your only option is the initiation of global devastation. However, if one possesses the ability to wage limited nuclear war, perhaps even with the possibility of winning, one's nuclear threats look more plausible. The second objective is damage limitation. Should war occur, it seems sensible to attempt to limit the opposition's ability to inflict damage. Aside from a robust defensive posture (both passive and active), the surest way to blunt an enemy's attack is by destroying his offensive nuclear capabilities. Both Colin Gray and Herman Kahn have correctly argued that Armageddon is not the only possible outcome of nuclear conflict. That being the case, it seems plausible to conclude that the scale of destruction is partially dependent on one's pre-war preparation.[26] Related to the objective of damage limitation is the third objective: 'countervailing', which seeks to prevent the enemy from achieving his strategic objectives. This strategy finds expression in President Carter's Presidential Directive NSC-59 (1980): '[I]f deterrence fails initially, we must be capable of fighting successfully so that the adversary would not achieve his war aims.'[27] Finally, a warfighting option can seek to prevail against the enemy.

Ironically, for a form of nuclear strategy that has received much criticism on ethical grounds, warfighting may actually be required under the terms of just war doctrine. One of the criteria for a war to be judged as just is that there must be a reasonable prospect for success. It could be argued that in the absence of a warfighting posture, nuclear conflict has far less chance of presenting a victor.[28]

How does one translate the theory of warfighing into reality without the benefit of past experience of waging nuclear war? During the Cold War the United States introduced the SIOP, which consisted of a range of contingencies or attack options from which the president could choose. Although, thankfully, the SIOP has never been tested

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in anger, evidence suggests that it may have suffered from some serious defects. Even after the Schlesinger Doctrine (1974), which called for the creation of a greater range of limited options for the National Command Authority, the SIOP was always very restricted in its range of options. For example, when President Nixon and Secretary of State Henry Kissinger were briefed on SIOP 4 in 1969, they were horrified to discover that there were only five options available to the president, all of which involved the launch of massive numbers of warheads. SIOP 5, approved in 1976, was little better. President Carter complained that the options were rigid and there was a distinct lack of limited options. There appears to have been a running battle between administrations and the military, with the former striving for greater flexibility and choice in nuclear targeting options. In response, the military seemed to prefer playing it safe and 'going big' in their nuclear attack options. In order to protect this preferred approach, the military constantly balked at or delayed studies and reform designed to promote limited options.[29] A final indicator of how ill formulated the SIOP was is the fact that Jimmy Carter was the first president to undertake a full test of the system.

From a warfighting perspective, for much of the Cold War the SIOP was clearly inadequate. Many of the failings of the system appear to emanate from tensions and differing perceptions within the political–military relationship. However, a poor interface between the political and military worlds is not unique to nuclear strategy. As noted in the introductory chapter, one of the complicating factors in strategy is bringing together these culturally distinct groups in a successful manner. What makes nuclear strategy different is the compressed time for decision making and the pace at which total disaster can unfold. Put simply, in a nuclear conflict there may be little, if any, time to rectify initial mistakes.

When one begins to discuss prevailing strategies in nuclear war, there is a distinct need to establish a definition of victory. What exactly would victory look like in a nuclear conflict? Should we consider victory in exactly the same terms as we would for any other form of conflict, or do we need to redefine the concept? This is another area in which Herman Kahn's work stands out, but is also heavily criticised. In the early 1960s Kahn broke new ground when he discussed in detail, and in public, what nuclear war might mean for the United States, and how it could plan for such an eventuality. What is clear from Kahn's work is that prevailing in a nuclear war would require a new mindset. Nonetheless, Kahn argues that with preparation the United States could survive a devastating nuclear conflict and eventually re-emerge as a functioning society. Nuclear war certainly presented new challenges, even beyond those faced by the countries most heavily devastated during the Second World War. One particular challenge discussed in Kahn's *On Thermonuclear War* is the effect of radiation on the population. Kahn's litmus test for whether nuclear war was a survivable phenomenon is the question 'Will the survivors envy the dead?' Much of Kahn's work is devoted to ensuring that the answer to this question is in the negative. In terms of preparation, aside from offensive actions to degrade enemy offensive capabilities, Kahn put much emphasis on passive defensive measures.[30]

Taken together, the many challenges involved in waging nuclear war in a controllable manner, and hopefully surviving and achieving one's objectives, suggest that in all likelihood any victory in a superpower confrontation would have been pyrhic. The

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potential for escalation, whether intentional or not, would almost certainly lead to such devastation that it is difficult to identify how any reasonable policy objective could be achieved at reasonable cost. However, as problematic as this all seems, having the intention and the capabilities to control nuclear war is surely preferable to having Armaggedon as the only option. Nuclear weapons have to be regarded as just another instrument of strategy. They cannot be left in some strategic limbo. The more the theorists of the Cold War analysed the subject, the more rational nuclear strategy became. If nothing else, warfighting options appear to enhance the credibility of deterrence (assuming they do not make the enemy so nervous as to pre-empt). It should also be borne in mind, no matter how unpleasant, that survival does not have to be the ultimate, overriding objective. 'Better dead than red' is a catchy way of stating that denying the enemy conquest may be the ultimate objective, and that destruction of the state in the process may be a price worth paying.

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Soviet nuclear strategy

The Soviet Union took a significantly different approach to nuclear strategy. Ironically, as sections in the United States' defence community moved from deterrence to warfighting, Soviet thinkers moved in the opposite direction. Initially, the Soviet Union regarded nuclear weapons predominately as instruments of use, and thereby as complements to existing conventional forces. In particular, it was envisaged that nuclear weapons would be used to achieve a breakthrough on the battlefield, which could then be exploited by conventional forces. Deterrence was not formally adopted until 1969. Prior to this, the Soviets understood nuclear strategy on the basis of pre-emption. Due to a history of suffering invasions to the Russian homeland (including the 1941 invasion by Nazi Germany), the Soviet Union sought to minimise its vulnerability in any future war by pre-empting an attack. On this basis, Soviet war plans envisaged two phases for nuclear operations. The first phase would be a massive nuclear salvo against the United States. The second phase involved the use of nuclear weapons in support of conventional forces, as noted earlier. In this early stage of Soviet nuclear strategy the Soviets did not develop a second strike capability. This was partly a result of the emphasis on pre-emption, but was also due to technical limitations in the forces and command and control infrastructure.

Over time, deterrence based on pre-emption was rejected due to an increasing fear of US second strike capabilities. In its place, the Soviet Union developed its own second strike capability, but also gradually began to de-emphasise nuclear weapons in its military strategy. To this end, the Soviets hoped to deter American nuclear weapons while playing to their strengths on conventional forces. To enable this, the Soviets paid increasing attention to theories of escalation dominance. Although, for a while, they toyed with notions of limited nuclear options, by the end of the Cold War the Soviets had rejected the idea that nuclear war could be won or controlled. With such conventional superiority, it made sense for the Soviets to focus on deterring NATO's nuclear forces. Thus, a second strike capability became central to their strategy, with damage limitation the objective should nuclear usage occur.

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Nuclear strategy with limited numbers of warheads

The United States and Soviet Union both had the luxury (and associated problems) of substantial numbers of warheads and delivery systems with which to construct their strategies. How different is nuclear strategy with limited numbers of warheads? In answering this question, the cases of Britain and France provide valuable insights. Not surprisingly, as independent powers, neither of these countries opted for a warfighting strategy. Facing the scale of the Soviet nuclear arsenal it made no sense to engage in counterforce attacks. Such an approach would neither deter the Soviet Union nor lead to significant damage limitation in the event of a conflict. The one qualification to this position relates to British nuclear forces acting in support of United States nuclear strategy. Under plans to operate in combined arms operations with her transatlantic ally, Britain's nuclear forces could have some counterforce roles, including attacks against Soviet air bases.

Nonetheless, for the most part British and French nuclear strategy was focused on deterrence of the Soviet Union via threats against countervalue targets. Despite overwhelming Soviet superiority, British and French deterrence rested on the threat of punishment metred out against Soviet cities (especially Moscow). The French described this strategy as 'deterrence by the weak of the strong' and spoke of the 'equalising power of the atom'. Over time, in order to enhance credibility (or perhaps to make the strategy more acceptable to their domestic population), both powers shifted from the deliberate targeting of population centres to political and industrial targets. In reality, of course, this shift still threatened massive civilian casualties.

As with the superpowers, this approach to deterrence rested on a secure second strike capability. At varying stages of the Cold War both Britain and France developed and/or deployed all aspects of the nuclear triad. However, towards the end of this period they both increasingly relied on SLBMs, which are regarded as the most secure retaliatory capability. As a final point, it is worth noting that the French in particular did explore flexible options in their nuclear strategy. They wanted to avoid an 'all-or-nothing' approach, and explored a range of responses, which included single-warning salvos against military targets, intra-war deterrence and nuclear bargaining.

Stability: ballistic missile defence and arms control

An interesting and important addition to Cold War development of nuclear strategy is the debate surrounding ballistic missile defences (BMD) and the potential impact on stability. The paradoxical logic of strategy ensured that once ballistic missiles became a viable delivery option countermeasures would be developed.[31] BMD development began early in the missile age. Both superpowers developed a number of systems. However, the ballistic missile, whether land based or launched from a submarine, maintained its position as the delivery system most likely to penetrate enemy defences. This dominance can be attributed to two main reasons. The first concerns the enormous technical difficulties of intercepting a ballistic missile. Successfully tracking and destroying a missile and/or its payload in flight is a tough technological challenge. This challenge is magnified substantially when one is dealing with the thousands of missiles, warheads and decoys involved in the superpower standoff. One of the main problems is

concerned with the command and control of a BMD system in the face of such an overwhelming number of targets. Tracking, targeting, and then retargeting thousands of objects represents an enormous software challenge.

The technical aspects of BMD were only part of the problem during the Cold War. Due to the fact that many saw MAD as a stable security relationship, the development of any system that could undermine MAD was discouraged. This reached its climax during the arms control agreements of 1972. The Anti-Ballistic Missile (ABM) Treaty restricted each superpower to the deployment of 100 interceptor launchers at one site. To all intents and purposes this made BMD a nonstarter in the Cold War. The argument against BMD focused on its potential efficacy against a degraded enemy second strike. Although BMD looked defensive in nature, it could potentially undermine stability by being most effective in support of a first strike. In this manner, an enemy might fear the deployment of a BMD system because it undermines their retaliatory capability and may indeed be the prelude to a surprise attack.

The quest for technological stability was further enhanced by the Strategic Arms Limitation Treaty (SALT), which limited the numbers of offensive MIRVed warheads. MIRVed warheads were regarded as a threat to stability because they were perceived as effective counterforce weapons. Again, this seemed to threaten the potential efficacy of retaliatory forces. However well intentioned, both the ABM Treaty and SALT were based on an approach that largely ignored the political dimension of stability, and focused on the technical aspects. In which case these efforts to shore up stability may have been barking up the wrong tree.

Following the arms control agreements of 1972, BMD largely disappeared from the agenda, only to reappear in 1983 with President Reagan's announcement of the strategic defence initiative (SDI). The SDI programme was an extremely ambitious attempt to escape from MAD, and envisaged the deployment of a layered defensive system that included space-based assets and directed energy weapons. As it was, SDI never appeared in its original guise. However, the research and development projects that began under the auspices of SDI are now slowly beginning to bear fruit with the current national missile defence deployments.

Whether or not SDI was ever a realistic attempt to deploy a workable ABM system, it certainly had an impact on the course of the Cold War. In conjunction with other defence projects (namely the B1-B bomber and MX Peacekeeper ICBM) SDI helped to precipitate a change in the superpower relationship. By the early 1980s the Soviet leadership was increasingly concerned about the state of its economy. The Soviet Union simply could not match the defence modernisation being undertaken by the United States. As a consequence, the Soviets sought to improve the superpower relationship and reduce their defence commitments via a series of arms control agreements. The most notable of these was the Intermediate-Range Nuclear Forces (INF) Treaty in 1987, which scrapped an entire class of nuclear weapons from the superpower arsenals. To some, this was a welcome move in the direction of greater stability, since INF were potent first strike assets, given their short flight times. To others, the INF Treaty blew a large hole in NATO's Flexible Response force structure.[32]

It should be clear from the preceding paragraphs that arms control played an important cameo role in nuclear strategy during the Cold War. From the very outset of the

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nuclear age there were attempts to restrain the development of nuclear weapons and/or enhance the stability of the superpower nuclear relationship through arms control agreements. As the examples given indicate, the arms control regime either placed ceilings on certain categories of weapons or removed them completely from the security environment. In addition, attempts were made to control the pace of weapons development with test-ban treaties. However, despite the enormous levels of effort expended on arms control, the superpowers continued to build up and modernise their forces. If there existed stability in the superpower relationship, it had little to do with arms control. Rather, stability was more likely the product of a realisation of mutual vulnerability and the absence of a sufficient political cause to risk global devastation.

Arms control has often, and correctly, been criticised for ignoring the political dimension of the security environment. Ironically, it is the political dimension that dictates the fate of arms control talks, and helps to explain the arms control paradox. The paradox states that when you really need arms control (when the political situation is dire), it cannot be achieved, and when you do not need it (during a period of détente), it is easier to achieve. States embroiled in a tense security situation are unlikely to sign away their key military capabilities. From a strategic perspective, the main concern with arms control is that it must not undermine strategic efficacy. Unfortunately, it seems that arms control negotiations are often conducted in a strategic vacuum, as evidenced by the INF Treaty. It is therefore of concern that the Obama administration appears to have placed nuclear abolition at the forefront of its nuclear policy, with little apparent concern for the effects on its nuclear strategy.

Contemporary nuclear strategy

Since the end of the Cold War the most noticeable feature of nuclear strategy has been a lack of development. To give some indication of the dearth of thinking on nuclear strategy, one can look to the level of coverage in the main academic journals. As an example, since 2000 there have been approximately four articles in *International Security* that could be considered as works of nuclear strategy. Over the same period, *Survival* has only two articles that could properly be considered works on the subject. Furthermore, Michael Quinlan's 2009 work, *Thinking About Nuclear Weapons*, is concerned largely with managing proliferation.[33]

During the 1990s the academic discipline of strategic studies was dominated by civil conflict and the subject of peacekeeping (in response to the conflicts in Bosnia and Somalia). Following the 1991 Gulf War defence professionals also became fixated on the revolution in military affairs (RMA) hypothesis. The RMA school of thought focused distinctly on the development of conventional capabilities, and in parts suggested that conventional arms were becoming so potent that they could replace nuclear weapons for certain missions. In particular, increased levels of precision gave conventional munitions an assured kill capability that had previously been limited to nuclear weapons. As strategic studies moved into the twenty-first century, the events of 9/11 and the wars in Iraq and Afghanistan refocused much intellectual activity into the fields of terrorism and counterinsurgency.

As far as nuclear strategy is concerned, the negative trend in academia is mirrored in

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many western polities. Thankfully, the Bush administration somewhat bucked this trend, conducting nuclear posture reviews in 2001 and 2009/10. Similarly, the Obama administration appears to be giving some considerable attention to nuclear weapons. However, while this focus on nuclear issues is to be welcomed, there are signs that Obama will spend much of his effort on pursuing disarmament rather than developing nuclear strategy. Note, for example, the following statement: 'According to a senior state department official, the NPR's "first step" involved "develop[ment of] a nuclear force structure and posture for use in the negotiations" of the successor agreement to START I.'[34]

Across the Atlantic, successive British governments' rationale for the decision to replace Britain's Trident submarine force reveals a paucity of thought on nuclear strategy. Although recent British governments have presented a strong case for why Britain requires a nuclear deterrent (their preferred term for Britain's nuclear weapons) in the current and near-term security environment, the scarcity of discussion on nuclear strategy is telling. The 2010 Strategic Defence and Security Review's defence of ambiguity in nuclear posture (as a deliberate act of deterrence) is plausible but unconvincing, and does little to communicate the threat to potential enemies.[35] This stance, considered alongside the fact that British policymakers chose the easiest option for replacing Trident, suggests that Britain is a reluctant nuclear power with little interest in developing warfighting options or using nuclear weapons to exert leverage in international politics.

It is entirely understandable, and proper, that defence professionals focus their efforts on the needs of the moment. However, the decay of nuclear strategy in the contemporary period could leave us seriously unprepared in an age of nuclear proliferation. Ironically, while strategic thought on nuclear weapons has been muted, there has been much activity surrounding the issue of nuclear proliferation. The acquisition of nuclear weapons by India and Pakistan, and the ongoing concerns about the Iranian and Korean nuclear programmes, have motivated a great deal of interest in the subject.

In large part due to these increased levels of horizontal proliferation, the 'second nuclear age' presents strategists with a number of challenges, many of which are distinct from those faced in the Cold War.[36] Thus, one of the tasks facing strategists is to establish an understanding about how much of Cold War nuclear strategy can be adapted to the contemporary environment. It may be the case that entirely new forms of nuclear strategy have to be developed. One feature of the new nuclear environment that appears to demand change is the significant reduction in numbers of warheads possessed by the major nuclear powers. Depending on the progress of the disarmament process, and in particular the real outcome of the 2010 New START Treaty, the USA and Russia could have approximately 1500 deployed strategic warheads each.[37] However, reductions in vertical proliferation has been somewhat offset by horizontal proliferation. Nuclear weapons have spread to unstable states such as Pakistan, and in the near future could well be in the possession of revolutionary states in the form of Iran and North Korea. There is also the looming risk of nuclear weapons falling into the hands of terrorist organisations. An increase in the ownership of nuclear weapons, especially when unstable powers or terrorist organisations are involved, may increase the potential for accidental or even deliberate use of the weapons.

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Ironically, at a time when the prospects for nuclear usage are increasing, the nuclear taboo is gaining a stronger foothold in the west. The Obama administration's Nuclear Posture Review belongs strongly in the nuclear taboo camp. In a document that clearly has nuclear disarmament as its guiding principle, it is not surprising to see the inclusion of President Reagan's definitive take on nuclear weapons: 'A nuclear war cannot be won and must never be fought.'[38] The growing influence of the nuclear taboo is problematic from a strategy perspective because it seriously limits options, while also undermining the credibility of any deterrence posture by throwing into question a state's commitment to fulfil their threats. One possible escape route from the nuclear taboo in the west is the development of low-yield weapons (below 5 Kt), or so-called 'mini-nukes', which may be used for specific missions, including the destruction of buried targets.[39] Such a capability would be a welcome addition for nuclear strategy, particularly since it increases the likelihood of response. However, these weapons would have to be fully integrated with existing capabilities in order to produce a coherent nuclear strategy. Importantly, the prospects for developing such weapons have received a blow with Obama's pledge to prevent the development of any new nuclear weapons.[40]

The final challenge of the second nuclear age is the ongoing development and deployment of ballistic missile defences. As noted earlier, the ambitious goals of SDI had to be severely scaled back. However, today's national missile defence (NMD) programme, with the goal of intercepting approximately 200 warheads, appears far more achievable, albeit no less controversial. Just as SDI raised questions over stability in the superpower relationship, so NMD has caused tensions between the USA and others, namely Russia and Iran.[41] It has yet to be fully understood what the implications of missile defence deployment will be for nuclear strategy in the second nuclear age.

Nuclear strategy for the twenty-first century

What follows is a tentative attempt to construct a new nuclear strategy for the twenty-first century. It will quickly become apparent as this section of the chapter develops that many of the concepts from the Cold War retain their validity in the second nuclear age. This section will focus primarily on the USA. This is done to create a more appropriate comparison with the above analysis of Cold War nuclear strategy. When one examines the security environment of the twenty-first century it becomes readily apparent that flexible options must remain central to any US nuclear strategy. To the credit of the Bush Administration, its 2001 Nuclear Posture Review adopts just such a flexible approach. In particular, it seeks to bring together nuclear and conventional offensive strike systems to form an organic whole.[42] With the addition of BMD and passive civil defences, the USA is left with a range of capabilities to deal with the varied challenges of the contemporary and near-term security environment.

With these capabilities in place, a flexible deterrence posture could be constructed. Although deterrence can never provide an absolute guarantee of security, it should still provide the cornerstone of US nuclear strategy. In fact, deterrence of WMD use may be more important now for the USA since the country currently enjoys conventional superiority. Preventing a conflict from crossing the WMD threshold plays to the

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strengths of the US military, at least in regular warfare. For this new deterrence posture, both forms of deterrence should be pursued. In the case of deterrence by denial, BMD and robust passive defences may be enough to prevent a smaller enemy (although probably not Russia) from achieving its goals in any WMD attack on the US homeland or deployed forces. Of course, BMD would have no role to play in a WMD terrorist attack using rudimentary means of delivery. However, passive civil defence could help to limit the number of casualties from such an attack (the WMD terrorist threat is discussed in more detail later), and thereby deny a terrorist organisation its goal of creating millions of casualties. Low-yield nuclear weapons may also have a deterrence-by-denial role against a foreign power's conventional military capabilities. With the ability to escalate to the use of nuclear weapons, the USA can all but guarantee that an enemy's offensive ambitions will be thwarted. However, current US conventional capabilities are likely to be able to cover such a mission without the need for crossing the nuclear threshold.

Beyond denial, the punishment form of deterrence perhaps presents a slightly more challenging task for future nuclear strategists. This is particularly the case in relation to the issue of credibility. As simple as it would be to threaten the destruction of an enemy's homeland with city-busting warheads (as during periods in the Cold War), the west would now struggle to credibly threaten such an indiscriminate response. Thus, punishment forms of deterrence must be more discriminate and tailored more precisely to what the enemy leadership values. The most promising target sets in this respect are those associated with leadership, infrastructure, and the security forces on which political leadership often relies for the maintenance of power. Narrowing possible target sets in this way does not, however, instantly solve the credibility problem, since many of these targets are in populated areas. This is where the mix of conventional and nuclear strike forces becomes especially useful. Precision conventional weapons can be used to attack targets in areas in which collateral damage would be significant from nuclear usage. However, nuclear weapons, especially those of a lower yield, could conceivably be used against targets (especially those military in nature and hardened) away from population centres. Indeed, the use of nuclear weapons could be a significant signal of intent and a willingness and ability to escalate a conflict. In turn, this may be a useful coercive technique and could also fulfil the function of intra-war deterrence.

A punishment role should also be retained for the larger nuclear triad weapon systems. Although it is very unlikely that large-scale devastation of an enemy's homeland would ever be seriously contemplated, the future is uncertain. As history teaches us, it is not beyond the realms of possibility that some form of total war will re-emerge in the future. As unlikely as this may seem, the reader should consider that the Second World War seemed impossible to many after the slaughter of the First World War. Similarly, a US-led invasion of Afghanistan was not on the agenda before the events of 9/11. Thus, retention of a large nuclear capability can be regarded as the equivalent of a car airbag. It is unlikely that it will ever be deployed in anger, but would be crucial if needed (most likely in a deterrence role).

The prospect of retaining larger nuclear weapons for punishment purposes leads us once again into the subject of escalation dominance. Although the finer details of Kahn's theories on escalation may have been heavily criticised, the concept of escalation dominance is sound. For the purposes of deterrence, both pre-war and intra-war,

the USA must ensure that it can dominate any level of a conflict that involves nuclear weapons. This includes having the capability to prevail, or at least countervail, at the upper end of the nuclear weapons spectrum. At present, the USA already has the required capability vis-à-vis states such as Pakistan or a potential nuclear-armed Iran. However, it must also seek to retain this capability in relation to any potential peer competitors, such as Russia and possibly an empowered China. If the USA forgoes the capabilities required for escalation dominance, it must accept a weakened bargaining position in any future conflict with a major nuclear power.

Retaining sufficient numbers of accurate, modern nuclear forces is also required for warfighting purposes. Although some western governments may prefer to regard their nuclear forces as weapons of non-use, it is essential to retain both the capability and will to wage nuclear war. A warfighting capability is important for counterforce missions. In particular, future US administrations must be able to degrade an enemy's offensive nuclear forces to limit damage to the US homeland and the territory of its allies. This mission would be enhanced with the full deployment of BMD and a robust civil defence programme. A combination of modern offensive and defensive systems should provide the USA with the most advanced nuclear warfighting capability in the international system. In turn, this should enhance deterrence, and should deterrence fail, it should give the USA a reasonable chance of limiting the amount of damage inflicted on its population.[43] Alongside the adoption of an escalation dominance force structure, a warfighting capability should also provide the USA with considerable bargaining power during a future crisis. Inevitably, fears will be expressed concerning the stability implications of such a force structure. However, as ever, such fears are groundless if they are based purely on technical and operational concerns, rather than on politics.

Much of this chapter may seem as if it has been lifted straight from the Cold War, and therefore is of little relevance for today and certainly out of step with much current thinking. However, the similarity with previous strategy is so vivid because the fundamental principles of nuclear strategy have changed little since the first nuclear age. What has changed is that with fewer operational warheads and the deployment of a robust missile defence system, nuclear weapons have been freed somewhat from the straitjacket of Armageddon. The increased ability to 'use' nuclear weapons (whether they are actually fired in anger or merely threatened) strengthens the credibility of deterrence, and also makes nuclear war potentially more survivable. If political leaders have the required courage, nuclear weapons could once again become viable instruments in international politics, in extremis. However, this re-awakening of nuclear strategy is only possible if the required forces, doctrine and will are acquired to construct a flexible force structure with escalation dominance built in. This approach is in stark contrast to the Obama administration's stance on nuclear weapons, which has publicly declared its intention not to develop any new nuclear weapons.[44] Rather, Obama is pursuing an abolitionist agenda that places arms control and disarmament at the centre of US policy on nuclear weapons.[45] With such an emphasis on disarmament, nuclear strategy is being neglected.

Perhaps the most troublesome challenge for nuclear strategy in the second nuclear age is WMD terrorism. Without an easily identifiable 'return address', the threats underpinning deterrence appear to be impotent. However, further analysis suggests that

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many of the recognised elements of nuclear strategy can have a role to play, if only the strategist works that bit harder.[46] As already noted, punishment must threaten those assets or capabilities that an enemy values. Although terrorist organisations do not have such readily identifiable valued assets as nation states, they do have some that may be targeted. Financial assets, logistical and training infrastructures, and leadership all appear to be plausible candidates for valued target sets. Clearly, some, if not all of these targets are not well suited to nuclear threats. However, should terrorists escalate an ongoing conflict to include the threat and/or use of WMD, the rules of the game may correspondingly change. Lower yield nuclear weapons may become the weapon of choice to provide an assured kill capability against terrorist WMD stocks or facilities. Attacks against such targets could be regarded as counterforce, damage-limitation missions. Furthermore, leadership targets may become valid targets if they can be located. Indeed, nuclear weapons may be the only viable weapon if terrorist targets cannot be located precisely, but their general whereabouts is known. The wide area effects of a nuclear weapon perhaps give the greatest chance of destroying a target that cannot be precisely located.

Finally, deterrence by denial may also be applicable against a WMD terrorist threat. Although nuclear weapons may have a less prominent role in this respect, elements envisaged in the Bush administration's nuclear posture review seem appropriate for this task. Civil defence measures may be able to deny the terrorists the mass casualties they seek from a WMD attack. Similarly, the prospect of pre-emptive strikes (nuclear and/or conventional) against terrorist WMD assets, if they can be located, may compel a terrorist enemy to abandon any offensive plans. As with all deterrence postures, there are no guarantees that WMD-armed terrorists would be deterred. Nonetheless, a flexible force structure, which includes a range of nuclear and conventional capabilities, improves the chances of constructing a workable deterrence stance against such a threat. And, in the event of a deterrence failure, the same capabilities may facilitate damage limitation.

This discussion may seem fanciful, given that we are discussing the possible use of nuclear weapons (and the attendant human and environmental costs) to kill a handful of individuals and their limited military assets. However, as the title of Herman Kahn's 1962 book indicates, when considering nuclear weapons and WMD we must be prepared to 'think about the unthinkable'. If we refuse to do so, we may be seriously unprepared if and when these weapons are used against us. Indeed, being unprepared may actually encourage others to use such weapons.

Conclusion

Although initially appearing to be the perfect instrument for existential deterrence, and thereby a positive force for stability, nuclear weapons proved to be somewhat of a headache for the practitioners of strategy. The basic technical characteristics of a nuclear weapon seem to reduce its credibility as a useful tool of strategy. It is quite a challenge to harness such enormous destructive power for the pursuit of rational policy objectives. The scale of the challenge is magnified substantially when thousands of warheads, only minutes from their targets, are deployed in the tense atmosphere of the

Cold War. However, in response the intellectual community produced extraordinary works of theory, and in the process helped to create the distinct academic discipline of strategic studies.

Despite being used initially in an offensive manner against Japan, nuclear weapons became dominated by the theory of deterrence. In response to the shortcomings of massive retaliation and existential deterrence, the nuclear strategy community quickly understood that tactical and operational details mattered where nuclear deterrence was concerned. The maintenance of credible second strike capabilities, on which MAD was based, required constant vigilance and developments. The details mattered even more in the field of extended deterrence. The theorists worked hard to produce a posture that would credibly persuade an adversary that the United States would respond with nuclear weapons in support of an ally, even in the face of assured destruction.

Various theories were developed in support of extended deterrence, but they all amounted to the same thing: how to control the dynamic of a nuclear relationship to gain advantage. Escalation dominance or 'the threat that leaves something to chance' were both concerned with establishing an advantageous position in nuclear bargaining and risk manipulation. The goal was to place the onus of compromise on the enemy. Should war occur, efforts were also made to construct workable theories of limited nuclear war. An attempt to control nuclear war to an even greater degree was developed within the warfighting school of thought. However, the further the theorists delved into limited war theory, the more difficult the whole enterprise appeared. The prospects for escalation seemed overwhelming. Nonetheless, there had to be an alternative to surrender or Armageddon. Thus, the search for warfighting options is the only responsible approach to nuclear strategy. Hopefully, deterrence would receive a credibility boost from the development of warfighting capabilities. However, should war occur, warfighting would at least present the possibility for damage limitation, countervailing, and perhaps even victory (prevailing).

Unfortunately, much of the valuable work done on nuclear strategy during the Cold War is being neglected in the contemporary environment. The current focus on nuclear abolition could lead to the dismantling of a credible force structure. In the face of increasing horizontal proliferation, countries like the United States require flexible nuclear strategy. Just as in the Cold War, a range of capabilities is required to ensure escalation dominance and a warfighting stance. If one accepts the obvious reality that nuclear weapons are here to stay, nuclear supremacy must be the goal for nuclear strategists. Without this, a state will leave itself in a weakened position vis-à-vis other developing nuclear powers. In which case nuclear weapons will cease to be viable instruments of strategy. And, as much as the civilised world may correctly despise nuclear weapons, they are part of our strategic reality, and therefore must be incorporated into strategy in the most advantageous way possible.

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Key points

1. Nuclear weapons pose a substantial challenge for the theorist and practitioner.
2. The challenge of nuclear strategy emanates from the destructive force of nuclear weapons allied to their means of delivery.
3. Deterrence lies at the heart of nuclear strategy.
4. The details matter in nuclear strategy.
5. Warfighting enhances deterrence and addresses the question: What happens if deterrence fails?
6. Contemporary nuclear strategy should not abandon the concepts developed during the Cold War.

Questions

1. **Is nuclear strategy an oxymoron?**
2. **Is nuclear deterrence reliable?**
3. **Do the details matter in nuclear strategy?**
4. **Is victory possible in nuclear conflict?**

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12 Terrorism

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Reader's guide: Controversies regarding the subject; limits to terrorist capabilities; networks in terrorism and counterterrorism; intelligence in counterterrorism; the 'new terrorism' debate.

Introduction

Terrorist attacks on victims ranging from office workers in New York to schoolchildren in Russia have dominated headlines throughout the twenty-first century. In response, American President George W. Bush committed his nation to a war on terror – a decision which eminent strategic theorist Michael Howard condemned as a 'terrible and irrevocable error'.[1] Terrorism is, in short, among the most publicised national security issues of our time, and it is also among the most hotly debated. Indeed, one of the main reasons why terrorists prevail in struggles with more powerful opponents is that they confront their foes with situations in which every possible course of action is painful, uncertain and bitterly controversial. Although terrorists may not be able to overcome their enemies directly, they may confuse them, divide them, isolate them, humiliate them and demoralise them, breaking down previously existing political relationships and making it possible for the terrorists – or, more commonly, others working alongside them – to impose new ones.

This chapter equips readers to analyse the ways in which terrorists and their opponents work to achieve political and military objectives. The first section discusses what terrorists have commonly been able to accomplish, the techniques they have commonly employed, and the resources they have commonly required. A second section considers the methods state governments and others have commonly used against terrorists and the strategic decisions those who fight terrorists must make. The conclusion considers the way in which terrorists fit into broader struggles in world politics and considers the proposition that an exceptionally vicious 'new terrorism' presents an unprecedented threat in the twenty-first century.

Box 12.1 Defining terrorism

One scholar estimates that academics have formally defined the word 'terrorism' to mean at least 200 different things.[2] The fact that the term conjures such strong

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emotions virtually ensures that attempts to define it will remain controversial. Few wish to define it in a way which will include groups they support as terrorist organisations, while many will wish to define it in a way that allows them to condemn their enemies as terrorists. Moreover, no matter how objective one is willing to be, it is probably impossible to draw a satisfying distinction between terrorism and other forms of warfare. If, for instance, one defines terrorism as an attempt to inflict terror on civilians, one must count strategic bombing as a terrorist activity – but the military and political considerations Britain and its Royal Air Force had to take into account when bombing Dresden in 1945 have little in common with the military and political considerations the Irish Republican Army had to take into account when bombing Manchester in 1996.

Strategists may find different definitions useful at different times. If one is interested in developing effective methods for capturing members of an organisation that is carrying out bombings within one's cities, one may not care whether one's definition of the word 'terrorist' would also include heroic members of the French Resistance fighting Nazis in the Second World War. If, however, one is interested in broader policy issues, one may need to define 'terrorism' in a way that takes legal, moral and political issues into account. When national leaders decide whether or not to support a particular group of combatants in a conflict, they may well need to consider whether to define those combatants as legitimate resistance fighters or as reprehensible 'terrorists'. The fact that many affect cynicism about this distinction does not change the fact that national leaders must make decisions of this nature; neither does it change the fact that there are meaningful moral differences between a Second World War-era resistance organisation that bombs German military installations in Nazi-occupied France and a contemporary terrorist organisation that bombs hotels in democratically governed India.

Since no one definition of terrorism will be appropriate in all situations, this chapter defines the term broadly and discusses special cases as they arise. Except where otherwise noted, this chapter adopts the definition Alexander Schmid offered the United Nations Crime Branch in 1992:

> Terrorism is an anxiety-inspiring method of repeated violent action, employed by (semi-) clandestine individual, group or state actors, for idiosyncratic, criminal or political reasons, whereby – in contrast to assassination – the direct targets of violence are not the main targets. The immediate human victims of violence are generally chosen randomly (targets of opportunity) or selectively (representative or symbolic targets) from a target population, and serve as message generators. Threat- and violence-based communication processes between terrorist (organization), (imperilled) victims, and main targets are used to manipulate the main target (audience(s)), turning it into a target of terror, a target of demands, or a target of attention, depending on whether intimidation, coercion, or propaganda is primarily sought.[3]

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What terrorists can do

G. W. Bush and his advisers may have blundered when they described their struggle with the Al Qaeda network as a 'war'. Nevertheless, terrorists have historically performed many of the same functions as state armed forces. To begin with one obvious point of comparison between terrorist groups and more formally recognised fighting organisations, terrorists can most certainly destroy enemy military assets. On 31 October 2000, to pick a well-known example, two members of the Al Qaeda network rammed the American destroyer *USS Cole* with a small boat loaded with explosives and incapacitated the warship for 18 months.

Terrorists may find it even easier to interfere with enemy military supply lines. During the 1990–91 Gulf War, for instance, terrorists with ties to the Iraqi government attacked a US Air Force base in Turkey.[4] Terrorists can also attack factories, laboratories, and other components of a country's defence industrial base. Such components may include people – and terrorists commonly carry out kidnappings and assassinations. During the 1980s, to pick one example, Communist organisations in Germany and Italy targeted scientists associated with America's attempts to develop defences against intercontinental ballistic missiles.[5] In a similar vein, terrorists may duplicate the functions of intelligence agencies, covertly gathering information on matters that interest them or their various sponsors.

Not only can terrorists sap their enemies' military capabilities, they can damage national economies. Al Qaeda's 11 Spetember 2001 attack on New York City and Washington, DC prompted the largest property/casualty claim in the history of the insurance industry.[6] Right-wing American organisations such as the Montana Freemen counterfeit the US dollar, not only to fund themselves, but to undermine the currency.[7] In the short term, terrorist attacks can deprive large numbers of people of goods and services. Over the longer term, such attacks – and the cost of guarding against them – contribute to inflation, unemployment and market crashes.

Terrorist attacks also compel opposing security forces to use money, personnel and other resources on counterterrorist operations, preventing those forces from attending to other things. During the early 1990s, for instance, the British internal security service MI-5 spent almost half its annual budget contending with terrorists in Britain and Northern Ireland.[8] In 1995, to note another example, the French police services assigned over 20,000 officers to counterterrorist work.[9] The secretary-general of the Paris police union argued that this undercut their ability to deal with more mundane forms of crime.[10]

Moreover, terrorists may hope to influence political decisions directly. Human beings occasionally compromise to avoid danger – and thus it follows that leaders, officials and voters will display this human trait. Indeed, there are circumstances in which it is right and prudent for them to do so. The British government has almost certainly saved lives and achieved valuable social ends by negotiating with the Irish Republican Army, even though this has involved granting concessions to groups that meet common definitions of terrorist organisations.

All this leads up to the question of whether terrorism can replace more traditional types of warfare. To answer this, we must first consider what people have traditionally waged war to accomplish. 'War,' Carl von Clausewitz tells us, is 'an act of force to

compel our enemy to do our will.'[11] Clausewitz adds that, 'to secure that object we must render the enemy powerless'.[12] For Clausewitz, this primarily meant destroying the enemy's forces. Ultimately, Machiavelli might have added, we may also have to overthrow the enemy's government and reorganise the enemy's society.

Can terrorists compel their enemies to do their will? Lenin, who was no stranger to the issue, held that they cannot. Even supporters of terrorism, he noted, admit that 'the government cannot now be terrified'.[13] To radicals who hoped that spectacular acts of violence would inspire members of the public to join the revolutionary cause, Lenin responded that those who had not already joined were more likely to 'stand by "twiddling their thumbs," watching a handful of terrorists engaged in single combat with the government'.[14] Although Lenin wrote these words for other Russian revolutionaries in 1902, his warnings hold true for most, if not all who have contemplated resorting to terrorism in every period of history.

Lenin described terrorist attacks as mere 'drops and streamlets'.[15] This image sums up one of the most important strategic weaknesses of terrorism. Even the most dramatic terrorist attacks tend to be brief, localised and sporadic. Rarely do terrorists have the resources or organisational capability to follow up even their most successful operations in a sustained or systematic way. Therefore, their targets remain in control of the outcome. One may speculate about what terrorists could accomplish with weapons of mass destruction, but states survive natural disasters claiming tens of thousands of lives, and the leaders of reasonably stable countries have reason to hope that their societies could survive even nuclear acts of terrorism.

Frightened politicians might offer terrorists concessions. Discontented citizens might rally to the terrorists' cause. Nevertheless, if they do not, the terrorists cannot force them to. Indeed, many of the factors which give terrorists power only work when the victims voluntarily 'injure' themselves.

Carlos Marighella, whose *Minimanual of the Urban Guerrilla* has served as an instruction book for numerous terrorist organisations over the past three decades, advised readers that one of their most potent weapons was their ability to goad their opponents into overreacting. Specifically, Marighella argued that terrorist attacks could drive governments to adopt repressive security measures. These, he argued, would turn ordinary citizens against the government and thus help other types of anti-government revolutionary win widespread popular support.[16] Marighella dismissed the idea that terrorists might achieve their political goals directly through their own efforts as no more than an egotistical fantasy, one of the 'seven sins of the urban guerrilla'.[17]

The role of the urban guerrilla, Marighella suggested, is to support rural guerrillas as part of a broader insurgency campaign.[18] (For more on insurgency, see Chapter 13.) Lenin expressed similar ideas in more general terms. In his view, 'the most pressing duty' of a revolutionary is to 'organize comprehensive political agitation'.[19] Terrorism can be an invaluable tool for reorganising societies, but if the new organisations are to achieve meaningful strategic purposes, some of their members must be capable of using other tools as well.

Thus, terrorists must work with external groups. Most terrorists need such contacts simply to function. Urban guerrillas require logistical support as much as armed forces of any other kind. Although they may try to make some of their own weapons, forge

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some of their own fake documents, care for some of their own wounded, maintain safe houses for some of their operatives to hide out in, and the like, they will eventually need money, supplies and outside assistance.

For these reasons alone, terrorist groups cooperate with apparently unrelated terrorist groups. The Irish Republican Army, for instance, has allegedly helped the Revolutionary Armed Forces of Colombia (FARC) improve its bomb-making techniques.[20] Neo-Nazi terrorists in Germany have sought alliances with left-wing groups, despite the fact that they supposedly oppose one another's political beliefs.[21] In 1972, members of Japan's Red Army killed 28 passengers at Israel's Lod airport on behalf of the Popular Front for the Liberation of Palestine.[22] Terrorists find partnerships with street gangs, drug smugglers, human traffickers, money launderers, illegal arms dealers, organised crime families and other elements of the criminal underworld invaluable as well.

Terrorists also work with superficially legitimate organisations. Charities, for instance, may provide terrorists with money, legal advice and other forms of support. Political activist groups may be even more forthcoming. Legally operated businesses may sell terrorists a wide range of goods and services. Terrorists who lack such support in their home countries may be able to find it elsewhere. The Irish Republican Army, for instance, notoriously solicits contributions from Irish-Americans, and groups as internationally obscure as Peru's *Sendero Luminoso* have developed networks of donors throughout western Europe and the United States.[23]

State governments are the most valuable friends any terrorist organisation can have. States can provide terrorists with far more money, far more useful information, far greater access to weapons, and far more connections to other possible allies throughout the world than any other type of supporter. States can offer terrorists safe places in which to train, organise, deposit money, stockpile supplies and regroup after operations, all without fear of arrest. States can even provide terrorists with well-trained personnel from their intelligence services and military special forces.

Even small states can support ambitious terrorist campaigns. During the 1960s and 1970s, for instance, Cuba trained members of the left-wing organisation known as the Weather Underground to strike against no less an opponent than the United States of America.[24] According to *Janes Intelligence Review*, Syria has sponsored over a dozen terrorist organisations operating in countries ranging from Turkey to Japan.[25] During the Cold War, the smaller Warsaw Pact nations actively promoted terrorist organisations throughout the west. Just as terrorists themselves often prove willing to cooperate with those who nominally oppose their political beliefs, Communist countries such as East Germany proved willing to support neo-Nazis along with left-wing groups.[26]

Not only do relationships with external groups make it possible for terrorist organisations to survive and carry out attacks, they help them to produce – or at least facilitate – lasting political change. The secretive groups that perform terrorist attacks may not be able to control public responses to their actions, but larger and more widely supported organisations such as labour unions and political parties may be able to manipulate popular opinion more dextrously. Once terrorists have excited large numbers of people through spectacular violence, broad-based organisations may find it

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easier to rally supporters for strikes, street demonstrations, guerrilla armies or even elections. Terrorists may help such organisations suppress rivals and they may frighten those who would prefer to remain neutral into choosing sides.

Most state governments officially refuse to negotiate with enemy terrorists. Although many governments quietly compromise this principle, few are willing to set a precedent for doing so openly or on major issues, and few are willing to accept the humiliation that would typically come from doing so. Governments are normally a great deal more forthcoming with political organisations that have some claim on legitimacy, even if those organisations also have well-known ties to militants. This is yet another reason why terrorist cells are more likely to achieve their goals if they can work alongside more broadly based organisations.

As noted earlier, terrorists have a vast potential to disrupt people's lives, interfere with public institutions, undermine national economies and even inflict losses on full-fledged military organisations. We went on to note that, by themselves, none of these capabilities offers terrorists a reliable means to overcome state governments. Once terrorists have tacitly recognised political organisations to speak on their behalf, they can use these capabilities to pressure governments into offering those organisations concessions, and to punish them when they refuse. This process may work differently in different countries with different political systems – terrorists may, for instance, achieve more from negotiations with democracies where significant numbers of voters sympathise with their cause than they will achieve by negotiating with strongly led governments representing societies where their cause is widely despised – but the principle is the same.

For this reason, violent movements typically separate into numerous organisations ranging from tiny groups of vicious fanatics to ostensibly peaceful 'political wings' which function as much like legal parties (or independent state governments) as their circumstances allow. All these groups are free to merge, split or change their methods as they wish. Different groups may pursue different policies simultaneously, and if one ceases to function, another may take its place. The leaders of these various groups may – or may not – turn out to be the same people. Often, many members are only dimly aware of their connection to the terrorist campaign.

This means, among other things, that few members have much useful information to betray. Some clandestine groups deliberately organise themselves into so-called cells in which no individuals in any group know any more about the other groups than necessary, but terrorist movements that rely on semi-formal relationships among semi-independent groups often achieve a similar effect without even trying. In recent decades, management theorists and strategic thinkers have become increasingly interested in the idea that loose 'networks' consisting of cooperative but largely independent 'nodes' may prove more resourceful, more resilient, more adaptable and harder for their opponents to understand than rigidly structured institutions. The art of achieving political objectives through terrorism is largely the art of forming such networks.

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Box 12.2 **Brought to you by your local terrorists**

Most successful terrorist organisations devote great effort to public relations. Since the invention of the printing press, political agitators have tried to win support by surreptitiously handing out propaganda leaflets on city streets. This tactic remains effective today. Newspapers, broadcast media and the internet allow agitators to reach larger audiences faster – and sensational acts of violence help them capture those audiences' attention. Terrorists commonly ensure themselves of favourable media coverage by publishing their own newspapers. Lenin himself operated a paper known as *Iskra* (Spark). Better yet, from the radicals' perspective, mainstream journalists have been known to pick up material from terrorist publications and use it in more widely respected papers and news programmes.

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Fighting back

Those who wish to fight back against terrorists must dismember the networks that make terrorism strategically effective. The first step is often that of forming an opposing network mirroring the terrorists' own. Terrorists support their operations through activities ranging from raising money by hawking compact discs of illegally recorded music to indoctrinating future recruits by founding schools in countries that lack adequate public education. The institutions that have the information, skilled personnel and legal authority necessary to interfere with terrorists' activities are equally diverse. To neutralise the terrorists in the previous example, for instance, state security forces will not only need to cooperate with police and international aid workers, they may need to liaise with music retailers.

To complicate matters further, most governments deliberately divide responsibility for internal security among multiple military, intelligence and law enforcement agencies, both for administrative convenience and to prevent any one of those agencies from becoming dangerously powerful. Much of the time, no one counterterrorist organisation will be in a position to disrupt more than a small part of the terrorists' operations. To stop terrorists achieving their overall goals, the various organisations that oppose various elements of their operations must work together. Governments that wish to resist terrorists must pass laws mandating cooperation, and members of the relevant organisations must work to cooperate effectively in practise.

Moreover, most successful terrorist groups are adept at spreading their operations throughout a wide area so that no single government has jurisdiction over more than a few of their activities. Although state police and security forces are normally terrorists' most dangerous enemies, this practice also helps militants minimise the damage other regionally based opponents might cause them. When terrorists use this technique, those who wish to strike against them – or even to uncover their activities – must normally find partners abroad. When terrorists operate in more troubled parts of the world, those who wish to pursue them may have to become involved in those regions' disputes –

with all the risk, violence and political complexity that entails. Thus, the business of forming counterterrorist networks often raises foreign policy questions of the highest order, such as which countries or other political organisations one is willing to associate with, and what one is prepared to do in order to gain their confidence.

Having joined forces, the counterterrorists must determine precisely what they are going to do. Once again, the fact that terrorist networks include members of so many types involved in such a wide variety of activities complicates this problem. To think sensibly about counterterrorist strategy, one must come up with general approaches for addressing the mind-boggling range of issues that may become relevant. One useful way to begin is to distinguish between strategy and tactics. Just as a general planning strategy in land warfare is normally well advised to leave tactical problems such as the best way to overcome a particular enemy bunker to the troops who must solve them, those who plan counterterrorist strategy may leave problems such as the best way to raid a bomb-making factory or the best way to reform a certain country's banking regulations to specialists.

Since this book focuses on strategy, it will not attempt to catalogue the kaleidoscopic range of 'tactical' policy issues that may become relevant to a contemporary counterterrorist campaign. Strategists must, however, remain conscious of the fact that their decisions affect tacticians' ability to do their jobs – and of the fact that their plans can only succeed if tacticians succeed at putting them into effect. These are among the reasons why the process of establishing cooperative relationships and freely flowing communications among members of counterterrorist networks is so critical. General Charles Krulak of the US Marine Corps observed that there are occasions when a low-ranking soldier who happens to be in a critical place at a critical moment may make decisions that affect the outcome of an entire campaign.[27] Krulak referred to this soldier as the 'strategic corporal'. Not only may counterterrorist campaigns involve strategic corporals, they may involve strategic customs inspectors, strategic intelligence analysts and strategic clerks in firms supplying explosives to the construction industry.

The foundation of counterterrorist strategy is intelligence. Some of the reasons for this are obvious. To attack terrorists, one must find them. Without warning of their activities, it becomes far more difficult to defend society against their attacks. Moreover, intelligence gives other aspects of counterterrorist strategy their definition. When one considers common strategy-level approaches to counterterrorism, one sees why this is necessary.

Researcher Christopher Hewitt has classified high-level counterterrorist policies into six categories:

- Ceasefires and negotiations[28]
- Economic conditions[29]
- Making reforms[30]
- Collective punishments[31]
- Emergency powers and anti-terrorist legislation[32]
- Use of security forces[33]

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More recently, the US government articulated its anti-terrorist strategy in terms of four 'Ds':

- Defeat terrorists and their organisations[34]
- Deny sponsorship, support and sanctuary to terrorists[35]
- Diminish the underlying conditions that terrorists seek to exploit[36]
- Defend US citizens and interests at home and abroad[37]

Other analysts may prefer other lists. One notes that all these general approaches to counterterrorism – and most others that one can imagine – are conceptually vague. What sorts of 'reforms' does Hewitt have in mind? How does he imagine that governments will make 'use of security forces'? The US government's list states its objectives more directly, but many of its methods are so broad that they are equally difficult to apply. Few will be surprised to learn that American authorities hope to 'deny sponsorship, support and sanctuary to terrorists' – the question is how?

One would expect vaguely conceived methods to produce inconsistent results. Hewitt's research confirms that the outcomes of broadly defined anti-terrorist policies are varied at best. When, for instance, he investigated instances in which governments negotiated ceasefires with terrorists, he found that the terrorist groups in his study normally moderated their attacks when the truces first took effect – only to resume them viciously later.[38] Hewitt's statistical analysis provided no evidence to suggest that governments could reduce terrorist activity by improving economic conditions, and, in fact, identified instances in which terrorists became more aggressive during periods of prosperity.[39] Terrorist attacks decreased after political reforms in some cases – but increased in others.[40] The same was true of collective punishments, new laws granting authorities emergency powers and deployments of security forces in troubled regions.[41]

The US State Department claimed that the number of terrorist incidents worldwide fell by 50 per cent in the two years after the American president called for 'war' on terrorism – but critics discredited these statistics, and the State Department eventually revised them.[42] Independent research provides some evidence that the number of terrorist attacks declined in this period, but not as much as the State Department data seemed to suggest. The British Home Office and the United States Department of Justice (DOJ) have also claimed clear-cut success for their twenty-first-century counterterrorist strategies – only to encounter similar criticism.[43] Syracuse University's Transactional Records Access Clearinghouse, for instance, has noted that although the DOJ identified an impressive 6400 alleged terrorists between 11 September 2001 and 30 September 2003, it only filed charges against one-third of them, and that the length of time convicted terrorists spent in prison actually declined to a median figure of 14 days.[44]

The fact that statistical data about the results of anti-terrorist strategies are ambiguous does not mean that such measures always fail. To the contrary, Hewitt's research identified circumstances in which wisely implemented counterterrorist strategies achieve worthwhile results. Strategies to reduce popular support for violent political movements by introducing political reforms, for instance, may initially encourage more attacks, especially when politicians appear to be giving in to radical demands.[45] Thus, when one studies reforms in the aggregate, they appear worse than useless.

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Nevertheless, when states have introduced reforms specifically designed to grant ethnic minorities and other alienated groups a greater stake in society, and when states have maintained those policies despite continuing terrorist attacks over the course of years, the level of terrorist activity has often dwindled over time.[46]

In a similar fashion, although Hewitt found little evidence to suggest that curtailing civil liberties, deploying large numbers of security forces or carrying out aggressive crackdowns reduces terrorist activities, he did find that security forces that actually succeed at imprisoning larger numbers of militants – with or without resorting to such measures – reduce levels of terrorist violence accordingly.[47] In most cases, the idea that turning terrorist fighters into martyrs will merely inspire others to take up their cause appears to be a myth. States that adopt authoritarian policies, however, are no more certain to succeed at neutralising terrorists than those that uphold liberal democratic principles. Benjamin Franklin reputedly stated that those who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety, and data from counterterrorist campaigns in Cyprus, Uruguay, Ireland, Spain and Italy suggest that Franklin was right.

More recent western approaches to counterterrorist strategy have also succeeded when effectively matched to appropriate cases. Jacobson details numerous French, British, German and American victories over terrorists in the early twenty-first century.[48] German authorities, for instance, appear to have arrested one of Al Qaeda leader Osama bin Laden's personal bodyguards.[49] Meanwhile, despite Hewitt's research indicating that attempts to compromise with terrorists typically fail, the British government appears to have successfully taken advantage of circumstances that permitted it to negotiate a lasting peace with the Irish Republican Army. (By the same token, one might say that the Irish Republican Army appears to have successfully taken advantage of circumstances that permitted it to negotiate a lasting peace with the British government.)

To develop a generally defined strategic concept such as 'making reforms' or 'deny sponsorship, support and sanctuary to terrorists' into a course of action that will prove effective in a real conflict, one must understand the terrorist network and the environment in which it operates. This kind of knowledge helps one determine whether the terrorists' fighting cells receive assistance from a disaffected portion of the population that might eventually respond to specific and acceptable political changes – or not. This kind of knowledge helps one determine whether a particular group of terrorists finds 'sanctuary' in states where governments wish to control them but cannot or states in which the government is deliberately assisting them. A strategy for denying terrorists sanctuary in the first case might mean foreign aid, whereas a strategy for denying terrorists sanctuary in the second case might mean war.

Under excellent circumstances, a well-informed, well-selected and well-implemented anti-terrorist strategy may extinguish a terror organisation in its entirety. Unfortunately, as earlier sections have noted, terrorist movements that succeed at organising themselves into diverse and well-compartmentalised networks may have no single 'head' to cut off. France and Spain, for instance, contend with a terrorist organisation known as ETA. ETA is a Marxism-inspired group that wishes to detach territory from northern Spain and southern France in order to form an independent state for the

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Basque ethnic group.[50] During the 1970s Spain introduced political reforms that dramatically reduced the Basque population's willingness to support ETA activities.[51] By the twenty-first century, Spanish security services appeared to have developed exceptionally effective methods for collecting information on ETA activities.[52] Spanish authorities went on to arrest several hundred ETA members, including, in 2008, the head of its military wing.[53]

ETA, however, includes a wide variety of semi-independent groups, of which the military wing is only one. These groups, in turn, include different types of member, some of whom fight as full-time terrorists and others of whom support the fighters in an assortment of ways while living as ordinary citizens. ETA also distributes its members across both sides of the border between Spain and France in order to make it as difficult as possible for authorities in either country to apprehend them. Therefore, ETA was able to replace its arrested military leader – and the four successive military leaders whom the Spanish also arrested – and launch a lethal new bombing campaign against Spain's police stations.[54]

Despite the fact that ETA remains active, the Spanish government's offensive appears to have reduced the terrorist organisation's capabilities. In 2000, ETA killed 23 people.[55] In the six years between 2003 and 2009, it has killed nine.[56] Although anti-terrorist forces cannot normally crush their opponents with a single decisive blow – or even a large number of decisive blows – they can progressively wear away terrorist networks' ability to function. A successful anti-terrorist strategy destroys important nodes in the terrorist network, forces the others to operate more cautiously, discredits the terrorists' cause, deprives terrorists of opportunities to cooperate with other types of political organisation, reduces fighters' access to all forms of support, empowers citizens to go about their lawful business with minimal terrorist interference and otherwise frustrates terrorists in their attempts to do what they must do in order to achieve meaningful objectives. Under this treatment, Lenin's drops and streamlets gradually dry up.

Box 12.3 **Intelligence in counterterrorism**

Writers commonly observe that some intelligence assets are more useful for monitoring terrorist networks than others. Many technologies that have proved invaluable for spying on state military forces are less useful for watching small groups that operate in secret. Satellite photography, for instance, is unlikely to reveal terrorist plans, and even less suitable as a means for identifying the various groups that make up terrorist networks. Human agents are widely acknowledged to be the most useful sources for intelligence in counterterrorism.

Human sources commonly include informers, agents who manage to infiltrate terrorist networks, captured terrorists who reveal information under interrogation. Such sources may also be bystanders who notice terrorist activities and choose to report them, often without fully understanding what they have observed. Since human intelligence sources are so critical to fighting terrorists, decisions which affect their use assume strategy-level importance in anti-terrorist planning. These decisions often raise difficult moral and political issues, which, in turn, may

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assume grand strategic and constitutional importance for entire states. To use informers, for instance, one may have to strike bargains with certain terrorists in order to monitor others. For agents to infiltrate terrorist organisations successfully, they may have to participate in terrorist activities. If one is fortunate enough to capture terrorists alive, one must decide whether or not to question them under torture – a process which may involve deciding how to define 'torture'.

Important as human sources are, other techniques of gathering intelligence may be useful as well. One may, for instance, eavesdrop on terrorists by tapping telephones, opening mail, intercepting internet messages and otherwise monitoring their communications. Since most competent terrorists are prudent enough to encrypt sensitive messages, cryptanalysis plays an important role in counterterrorism. Not only may intercepted communications contain important information, those who fight terrorists can benefit simply from knowing who known terrorists seem to be communicating with. Such information helps counterterrorists map terrorist networks.

Yet another proven method for gathering intelligence on terrorists is known as data mining or grid searching. This involves using computers to sort through large volumes of information on people's everyday activities in order to detect questionable patterns. Both communications intelligence and data mining can involve controversial issues as well, notably regarding privacy. Data mining may also raise questions concerning racial and other forms of discrimination. The intelligence analysts who design data-mining software and interpret its outputs may believe that members of a certain minority group are particularly likely to become involved in terrorism, but this may merely reflect analysts' prejudice. Even if the analysts are correct, other members of that minority group have a right to insist on being treated as innocent until there is specific evidence to suggest that they are guilty.

The previous examples might suggest that the most ruthless policies are the most effective ones. Even from the narrow perspective of counterterrorist operations, this is not always the case. For instance, those who hope to encourage bystanders to volunteer information must craft their overall anti-terrorist strategy in such a way as to retain maximum levels of public support. At a minimum, they must work to make members of the public feel safer cooperating with them than they feel cooperating with the terrorists.

Moreover, as Marighella's Minimanual suggests, the terrorists may find it easier to achieve their political objectives when governments resort to brutal, unjust measures. There are other reasons to adhere to ethical strategies as well. Counterterrorist planners must, ultimately, ask themselves why they are fighting the terrorists in the first place and what sort of society they wish to preserve. Intelligence is vital to counterterrorist operations, but it remains only a means to an end.

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Conclusion: everything new is old

During the 1990s certain researchers suggested that the nature of terrorism had changed. The scholar Antony Field identifies Bruce Hoffman, Walter Laqueur and Ian O'Lesser as pioneers of the so-called 'new terrorism' school of thought.[57] Earlier generations of terrorists, Hoffman, Laqueur and O'Lesser suggested, used violence in a measured way to achieve well-defined political objectives.[58] 'New' terrorists, these researchers argued, indiscriminately strike as many victims as they can.[59]

The 'new' terrorists' goals are vague and grandiose. Indeed, 'new' terrorists have no clear plans for achieving those goals – they kill simply to express the intensity of their feelings, which usually have to do with their religious beliefs. For these reasons, it is impossible to negotiate any kind of satisfactory compromise with 'new' terrorists. 'New' terrorists are also much more likely to seek and use weapons of mass destruction. Researchers from the 'new terrorism' school of thought went on to claim that terrorist organisations were becoming more international in scope, and that terrorists were making greater use of semi-formal network systems of organisation.

The concept of a 'new terrorism' certainly seemed to account for many of the prominent events that took place around the end of the twentieth century. Some studies suggest that, during this period, the total number of global terrorist incidents declined, but the attacks that took place became, on average, more lethal.[60] Many of the left-wing terrorist groups that had been active in the 1970s and 1980s dwindled. Two of the world's older and better known terrorist groups – the Palestinian Liberation Organisation and the Irish Republican Army – did indeed negotiate for more realistic political objectives than they had demanded in the past, while religiously inspired groups such as Aum Shinrikyo and Al Qaeda did indeed carry out vicious attacks for reasons many outsiders perceived as irrational. Al Qaeda, in particular, used the network system of organisation effectively.

In response, the United States of America adopted what one might call a strategy of 'new counterterrorism'. The US government enacted laws to make it easier for the security services to investigate and detain suspected terrorists. This was controversial, since many felt that the new regulations eroded important principles of human rights. Britain, Germany, and numerous others have adopted similar legislation and experienced similar controversies.

Moreover, America went beyond many of its allies by publishing a National Security Strategy in which it resolved to wage preventative war against potential terrorists and their supporters. According to this strategy, America would 'proceed deliberately, weighing the consequences of [its] actions', but it would not 'remain idle while dangers gather' – it would strike first.[61] The National Security Strategy justified this policy by noting that more restrained policies 'will not work against a terrorist enemy whose avowed tactics are wanton destruction' and went on to describe those terrorists in much the same way as Hoffman, Laqueur and O'Lesser.

As the twenty-first century has gone on, researchers have begun to question the 'new terrorism' hypothesis. Researchers such as Hoffman were right to note that twenty-first-century terrorists are cruel, fanatical and adept at forming network-type organisations on a global scale – but all this has been true of numerous other militant groups throughout history. Field takes up each of the supposed characteristics of 'new terrorism' in

turn, listing extensive twenty-first-century research, which shows that all of them are actually quite old.[62] Even the figures indicating that individual terrorist attacks have become more lethal may be less significant than they initially appear, since the researchers who produced them focused on international terrorist attacks.[63] Since most terrorist attacks are domestic, the researchers have, as Field notes, simply failed to consider the 'vast majority' of all terrorist incidents, including many of the most deadly ones.[64]

The changes of the 1990s and 2000s may have less to do with terrorism as an activity than with specific people and institutions that make up specific terrorist groups' extended networks. When the Communist governments of central and eastern Europe fell or reorganised themselves, left-wing terrorists throughout the world lost both their most generous sources of support and their most prominent sources of ideological inspiration. Meanwhile, terrorists who claimed to represent Islam succeeded in forming a global network of supporters. Organisations such as the IRA had not always followed a conciliatory approach. To the contrary, specific members of these organisations chose to change their older and more aggressive strategies during the 1990s and 2000s in response to specific circumstances and specific actions by their opponents. Members of these groups who preferred to continue more traditional forms of armed struggle broke away to form new organisations that claimed to be truer to their movements' original purposes – thoroughly muddling any attempt to distinguish between 'new' and 'old' versions of terrorism.

If the apparent change in terrorist methods reflects specific political changes rather than a general change in terrorism itself, one may ask whether early twenty-first-century approaches to counterterrorism have addressed these changes effectively. To an important extent, it has. Whatever frustrations NATO has faced since it invaded Afghanistan, it has deprived one of the world's most dangerous terrorist networks of sanctuary, training camps, substantial amounts of resources and many of its leaders. Throughout the world, states have stiffened their own counterterrorist policies and coordinated their anti-terrorist efforts with one another. Nevertheless, these counterterrorist methods have been costly in terms of lives and money. They have occupied the military forces of most western states, reducing those forces' availability for other purposes. Aggressive counterterrorist policies have been politically divisive in many ways, and states which have pursued them will find that this also affects their capabilities and relationships in far-reaching ways. The so-called war on terror may have succeeded as strategy in the narrow sense of the word, but its consequences in the realm of grand strategy are, at best, more complex.

Key points

1. It is practically impossible to define terrorism precisely, or to draw an absolute line between terrorism and other methods of using force.
2. Nevertheless, the fighters commonly referred to as terrorists play a significant role in world politics. Thus, as long as we remember that concepts such as 'terrorist' and 'terrorism' are imprecise, it is useful to study the topic.

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3. Terrorist fighters can degrade state armed forces, sap national economies, inflict widespread suffering and, indeed, influence political processes.
4. Terrorists seldom succeed in achieving broad political objectives on their own.
5. The strategy of using terrorism effectively consists largely of organising effective networks among a diverse range of groups.
6. Counterterrorist strategy depends on a similar process of network building.
7. Intelligence is even more critical to counterterrorism than to other strategic activities.

Questions

1. **Can we expect terrorists to refrain from using weapons of mass destruction?**
2. **Pick a terrorist movement. How great a role do state sponsors appear to play in its network?**
3. **Are suspected terrorists entitled to the same rights as other criminal suspects?**

Further reading

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13 Insurgency and counterinsurgency

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Reader's guide: Poor performance in counterinsurgency (COIN); defining the problem: insurgency as strategy (theory and practice); the strategic logic of COIN; coercion in COIN; COIN as war; the character of military operations in COIN.

Introduction

At the time of writing, insurgency is perhaps the most pressing issue in strategy. Coalition forces are still embroiled in a protracted counterinsurgency (COIN) campaign in Afghanistan, nine years since the fall of the Taliban regime. As a strategic option insurgency has a long pedigree. History is replete with cases of uprisings aimed at overthrowing the existing order. However, the twentieth century witnessed a substantial development in the theory of both insurgency and COIN. Men such as Mao and Gaulga, both of whom were theorists and practitioners, gave these forms of warfare a more developed, structured appreciation. Despite such efforts, the practice of irregular warfare has often not matched the conceptual heights to be found in works of theory. This is particularly the case with COIN, which still appears to present a steep challenge for those involved. This chapter will define the problem of insurgency, before attempting to understand the reasons for relatively poor performance in COIN.

Despite the vast amount of attention and study COIN has garnered over the years, the practice of it is often flawed, and successes have been few and far between. One of the primary reasons for this limited success rate may be disconnect between the nature of strategy and modern accepted wisdom on the subject of COIN. While it is true that COIN is a distinct activity that presents unique challenges to the strategist, it cannot operate outside the basic tenets of strategy. Thus, this chapter seeks to reconnect COIN theory with some of the core elements of strategy. An historical overview of the subject throws up some interesting contrasts between ancient and modern COIN practice. For example, it quickly becomes clear from an analysis of Alexander the Great's successful COIN campaign in Bactria and Sogdiana (in and around modern-day Afghanistan) that there are some distinct differences between his approach to COIN and today's. It is worth noting that Alexander subdued the region within 18 months.[1]

An historical analysis of COIN leaves us with the conclusion that, like any other form of strategic behaviour, there is an inescapable logic to COIN as an act of strategy. As will be discussed later, part of that logic is the threat and application of violence, sometimes against the civilian population. If one desires success in a COIN campaign,

then this logic cannot be ignored for the sake of social, legal, moral or cultural reasons. Indeed, if one tries to operate at variance to this logic, a competent insurgent foe should be able to outwit you. This creates something of a problem for the practitioner. As has been noted throughout this work, it is generally accepted that how a state wages war is to some degree a reflection of its culture. Similarly, the methods used by the armed forces should be generally acceptable to the society they serve. Thus, a dilemma arises if the norms and values of said society are at variance with the nature of war and strategy. In such circumstances, should a war be waged in a manner that is less effective, but is at least morally and culturally acceptable; or does a society have to accept a method of war that causes ethical and cultural discomfort? Indeed, can a state conduct war in a manner that is at odds with its culture? These questions raise a number of intellectual and practical challenges. These issues, as they relate to strategy as a whole, are discussed at length in Chapter 3. The current chapter deals specifically with the challenges relating to COIN.

In order to better understand the disconnect between theory and practice, once insurgency has been defined, the chapter will analyse the current accepted wisdom on the conduct of COIN. In particular, those elements that are at variance with the nature of war and strategy will be discussed. In order to provide an alternative perspective and approach, the chapter will then discuss the most important elements that are missing from modern COIN doctrine. The elements in question will be constructed from both a theoretical and historical basis. The theoretical aspect is provided by Thomas Schelling's work on 'the power to hurt', which is rarely, if ever, discussed in relation to COIN. The historical evidence is drawn from a range of different case studies, from Alexander the Great to Malaya. The work will conclude that modern COIN doctrine is flawed since it does not take adequate account of the power to hurt, and also has increasingly neglected the fact that COIN is still war, in which offensive military operations against insurgents form an essential ingredient of strategy. Thus, this chapter outlines an approach to COIN that, while respecting many of the elements of modern thought on the subject, does place a greater emphasis on the role of offensive military operations and the coercive use of force. When challenging the findings of this study, it may be easy to portray its central message as a rather simplistic, heavy-handed approach to COIN. However, not only would this be a misrepresentation of the work, such a criticism would also overlook the spirit of Clausewitz's comment that the absolute use of force is not incompatible with use of the intellect.[2]

Insurgency as strategy

Before discussing the solution, it is proper that we define the problem. How exactly does insurgency operate as a form of strategy? In contrast to terrorism, which seeks to effect political change indirectly by the use of force, insurgency is more direct in how it uses military power. Before going any further, it should be noted that although terrorism and insurgency are discussed as being distinct from each other, in fact they are not mutually exclusive. Indeed, it is often the case that a group will conduct a campaign of terror in support of their insurgency goals. This creates a complex security challenge for those involved in COIN. Irregular conflicts are rarely straightforward, and, indeed, their

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character tends to fluctuate and evolve over time. That said, there are conceptual and actual differences between terrorism and insurgency, and they are significant. Most important, unlike terrorism, insurgency seeks direct and physical control over an area. Thus, insurgent forces are used both to disrupt government activities (military and civil) and to establish insurgent control. Put more simply: terrorists seek political change; insurgents seek governance. Thus, even if an insurgency has strong terrorism elements, the objective of direct political control will always dominate.

Another notable consideration on this issue, well noted by James Kiras, relates to the strategic objectives and ambitions of irregular war. While it is often the case that irregular actors may have clearly defined objectives and strategies to achieve them, this should not be taken for granted. Rather, it may be that an irregular force has only a vague idea of how their strategy will function. Violence may be introduced into a political process, not with any clear idea of how it will effect change, but rather as a means to shake things up. Thus, a clearly defined strategy may not exist. Additionally, over time political objectives may come to play second fiddle to financial ones. Irregular warfare can be quite lucrative for those involved. That being the case, an insurgent force may aspire to control, not for the purpose of effecting political change, but rather to maintain and increase its income.[3] These are important points for COIN practitioners, who have to understand the objectives and strategies of their opponents.

As noted in the introduction to this chapter, the history of irregular warfare is essentially as old as war itself. Jewish uprisings against Roman rule around the time of Christ (one of the biggest rebellions coming in AD 66) are but one ancient example of an oppressed people taking up arms in the cause of liberation. Despite this long heritage, it is not unreasonable to claim that modern insurgency began its long road to maturity during the eighteenth century, and matured fully during the last century. Radical political ideas of liberation underpinned the American Revolution, which in turn inspired a wave of uprisings throughout Europe in the late eighteenth to mid-nineteenth centuries (1848 being the year of revolutions across Europe). The large conflicts that sometimes emerged from the spread of these ideas, most notably the French Revolutionary and Napoleonic Wars, also witnessed their fair share of insurgencies. Under French rule rebellions flared up across Europe, but perhaps the most significant was that which occurred in the Iberian Pennisula, from which we gained the term ‘guerrilla’.

From a theoretical standpoint, one of the most significant contributions is the work of T. E. Lawrence. Based on his account of leading the Arabs in their revolt against the Turkish Empire during the First World War, Lawrence’s work (*Seven Pillars of Wisdom*) identified some of the most important elements of a successful campaign of insurgency. In particular, Lawrence focused on the balance of forces relative to the geographic environment, and from this concluded that hit-and-run tactics conducted by small, mobile forces were the most appropriate operations for a rebel force. He also wrote on the primacy of the psychological aspects of insurgency. In other words, Lawrence understood that the primary function of insurgent force was to undermine the will of the enemy, rather than defeat it in battle.

Further theoretical maturation came during the twentieth century. This further development of theory and practice came about through the merging of Communist ideology and national liberation movements. Particularly noteworthy careers in this period are

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those of Mao, Regis Debray and Che Guevara (although the latter failed in the application of his theory in Bolivia). Aside from developing the three stages of revolutionary war (strategic defensive, stalemate and strategic offensive), Mao is notable for discussing the essential but complex relationship between force and politics. Mao understood that all use of military force must be perceived as a political action. That being so, it was essential to use violence in a manner that did not undermine one's other political activities. Indeed, Mao perceived military force as a means of protection for Communist insurgents, so that they could undertake political education of the masses. Just as important, Mao took Marxist-Leninist ideology, based as it was on the plight and support of the urban working class, and adapted it to serve the interests of a rural, peasant-based society. This last development had important implications for many under colonial rule. Thus, Mao's insurgency theory was exported to various countries, albeit with differing degrees of success and failure.

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Box 13.1 **Mao's three stages of revolutionary war**

Strategic defensive

Guerrilla warfare
Avoid set-piece battles
Small tactical offensives to stretch enemy resources
Political activities to gain popular support and establish political base

Stalemate

Attrite government's will and capability
Destroy government control in rural areas
Establish political and military control over countryside

Strategic offensive

Shift to regular warfare
Large battles of manoeuvre
Overwhelming force to destroy enemy forces

Perhaps the most successful export of Maoist theory was that undertaken by Ho Chi Minh and Giap in Vietnam. Although not an exact replica of Mao's theory and practice in China, the Communists in Vietnam did wage a protracted campaign, which developed over time from a guerrilla-based operation to something more akin to a regular invasion of South Vietnam. Less successful was the insurgency in Malaya, which suffered from a lack of outside backing and was eventually defeated by a coherent and patient British COIN campaign. In contrast to Mao's emphasis on education and politicisation of the masses, Che Guevara and Regis Debray based their theories around small groups of dedicated revolutionaries (the foco), who, through their actions, could

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create the necessary conditions for a general uprising. The value of this idea is perhaps reflected in the failures and deaths of both men.

As the Cold War has receded, the ideological motivations underpinning insurgency have changed. Where once Communism was the *cause célèbre* of insurgents, radical Islam now appears to be the main motivator. Aside from an increased emphasis on certain tactics, particularly suicide attacks, the cause of radical Islam has also given insurgency a more global character. Although it is true that different Communist revolutionary movements aided one another during the Cold War, contemporary Islamic insurgents (especially groups like Al Qaeda) have a more developed global network. This network is not just sustained by a common ideology, it is also underpinned by information age technology. Global insurgent networks complicate the task of those conducting counterinsurgency operations, in that they must conduct their campaigns at a global, national and even local level. However, while the global character of modern insurgency must be recognised, the local circumstances of each case must not be overlooked or underplayed. External support from Al Qaeda is important for some modern irregular campaigns, but solving local problems is often the key to success in contemporary COIN. This can be seen in Iraq, where the influence of foreign Al Qaeda fighters has receded as Iraqis have seen an improvement in their local conditions. These improvements have often been due to security measures enacted by local Iraqi militias, with the support of the United States and its allies.

There are a number of activities and methods of operation common to insurgencies. Political mobilisation is an essential ingredient of most insurgencies. Both to garner support for their campaign, as well as to establish the foundation for the forthcoming new political order, insurgent groups engage in education and proselytising of the local population. Since a degree of popular support is essential, insurgents often offer substantial inducements to the local population. These may include measures such as land reform or the provision of services (for example, in health and education). Alternatively, an insurgency may simply offer an opportunity to make money and/or increase one's social position. This is particularly important for young men in areas where employment and opportunities for social empowerment are limited.

Despite the significance of these non-violent political activities, an insurgency also relies on the application and threat of violence. After all, by definition insurgents are not engaged in a peaceful political process. Thus, an insurgency's non-violent methods are supported by military actions that seek to undermine trust in the state's ability to provide security and prosperity for the population. A certain degree of coercion is also often evident in many insurgent campaigns. Those in the population who do not accept the coming order willingly may be threatened, tortured or eliminated. The efficacy of coercion is a debated subject within the insurgency literature. Guevara considered its use problematic for fear of delegitimising the insurgents' cause; Mao and Carlos Marighella saw it as a method of dissuading the population from lending support to the governing authorities.[4]

The Viet Cong were particularly adept at violent measures. Often, on entering a village for the first time, they would murder the village elders to neutralise the established political order, before replacing it with their own. From the perspective of both insurgents and those engaged in counterinsurgency, the use of violence has to be finely

balanced. Although violence (especially in its coercive form) may be required to control the population, if used too freely or in the wrong context it will merely alienate those whose support you require. A recent example of this can be seen in Iraq. Participants in 'The Awakening', an Iraqi militia group that switched sides and turned against Al Qaeda, has recently explained the reasons for its decision. At the top of the agenda was the indiscriminate and/or brutal use of violence by its former allies.[5] In seems that, in terms of violence, Al Qaeda overplayed its hand in Iraq.

Assuming that the campaign goes well, insurgent military operations tend to evolve over time. Characterised initially by guerrilla hit-and-run tactics, insurgent campaigns are normally protracted affairs designed to weaken the resolve of their enemies over time. As the enemy retreats, insurgent forces and operations may increase in scale, and indeed become more regular in their form. In Maoist theory, the final stage of revolutionary war, 'strategic offensive', witnesses a shift to larger regular formations and actions. It is worth noting that South Vietnam did not fall to irregular communist guerrillas, but to conventional North Vietnamese divisions. Kiras draws our attention to the adaptable nature of insurgencies. Alongside the ability to morph into regular formations and operations, insurgencies are also often well placed to downscale when put under sufficient pressure. As Kiras notes, as long as the political organisation remains intact, insurgency has the opportunity of re-emerging at some point.[6]

Of central importance to most insurgencies is popular support. Since insurgent groups normally begin their campaigns at a substantial disadvantage relative to government forces, they must compensate for this in some way. By winning the support of the local population (normally via a combination of the carrot and the stick) insurgents can gain an important intelligence advantage over their foes, and also gain access to regular supplies and areas to hide in. The last consideration is essential for insurgents in the early to mid-stages of their campaign. Due to the material superiority of their enemies, insurgents require secure bases from which to conduct their guerrilla operations. Ideally, these bases can be established in secure geographic areas. In some cases, security may be provided by terrain (mountains, jungle, etc.) or by a friendly neighbouring ally who provides sanctuary. However, in some cases, neither option may be available. In this case, insurgents may need to operate from within the populous, and rely on their ability to hide among the locals for their security.

Taken together, these characteristics of insurgency produce the following challenges for COIN forces. They must offer a plausible political alternative to the insurgents. In turn, this requires the establishment of a secure environment to enable development projects to flourish. Thus, COIN forces must neutralise the physical threat posed by insurgents. However, bringing small, mobile guerrilla forces within striking distance of the superior fire power of regular COIN forces is a tough challenge. At the same time as defeating the insurgents, COIN forces must also protect the population from insurgent influence and intimidation. For regular forces, which are normally less mobile than insurgents and often rely on large amounts of fire power, these challenges can be extremely hard to overcome. This is especially the case in the modern environment, when the media and human rights organisations are ever on the watch. To refer back to the introductory chapter, and in particular to the comments regarding the bluntness of military power, COIN is such a challenging undertaking because it requires an

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extremely subtle exercise of military force in very delicate and complex political circumstances. Over time, doctrine and special forces have been developed to cope with this strategic challenge. However, despite such adaptation and development, success in COIN is often costly or missing in action. This chapter will now turn its attention to why this is the case. In particular, it will discuss the need for COIN campaigns to respect the nature of strategy.

The logic of COIN as an act of strategy

Although there are some encouraging signs of late, for the most part modern doctrine and thought on COIN has become somewhat disconnected from the strategic logic of counterinsurgency, or has at least underestimated parts of it (the military and coercive parts).[7] In this sense, there is a more fundamental flaw in modern doctrine, in that it misunderstands the key relationships in strategy. In particular, there is misapprehension concerning the relationship at the heart of strategy, namely that between military force and policy objective. Too often COIN is seen as primarily a political issue, in which military force is often regarded as a hindrance. For example, one COIN theorist discusses the need to transition from 'combat' to 'political' soldiers,[8] whereas any Clausewitzian understands that an act of combat is a political act. The killing of the enemy or the coercion of the local population is an act in the service of policy.

Box 13.2 **Thompson's five principles of counterinsurgency**

1. Clear political objective: establish a stable and unified country
2. Coherent plan: coordinating actions in economics, social, security, etc.
3. Secure government base areas
4. Operate within the rule of law
5. Prioritise defeat of political subversion

The modern approach to COIN appears to be based on a number of key theoretical and doctrinal works, as well as being influenced by contemporary norms and values. Influential writings on COIN include the works of Frank Kitson, David Galula and Roger Trinquier. One of the most important theorists, and indeed government advisers in his day, is Robert Thompson, who penned the seminal work *Defeating Communist Insurgency: Experiences from Malaya and Vietnam*. Thompson identified 'five basic principles which must be followed and within which all government measures must fall'. Three of the five principles represent sensible advice for any COIN campaign. The three in question are: have the clear political objective of establishing a stable and united country; the government must have an overall plan, which takes account of a range of factors, including economic, social, security, administrative, etc.; and finally, the government must secure its base areas. It is difficult to argue with the wisdom of these three principles. However, the remaining two principles are more problematic, and may be responsible for some of the difficulties facing modern COIN practice. In

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the first instance, Thompson states that the government must always operate within the law. As noted in Chapter 3, an overly strict adherence to a legal regime may hamper the process of strategy. Second, Thompson argues that 'the government must give priority to defeating the political subversion, not the guerrillas.'[9] These principles may be out of kilter with the inescapable logic of COIN as an act of strategy.

The logic in question is constructed of two elements. First, it is crucial to remember that COIN is still a form of war, and therefore operates in a violent and destructive context. Too often, writings on COIN focus on the competition in governance, and downplay the military dimension, whereas, in fact, the insurgent forces still represent a military foe to be defeated. Second, where there is political competition between the insurgent and COIN forces, it is a competition in authority, not popularity.[10] In contrast to this logic, modern COIN doctrine is firmly focused on the need for legitimacy and/or popularity. While legitimacy is often an important element in a COIN campaign, the concept of legitimacy is too often mistaken for popularity. This can be seen explicitly in *Field Manual 3–07, Stability Operations and Support Operations* (2003), which states: 'Success in counterinsurgency goes to the party that achieves the greater popular support.'[11] While legitimacy and popularity may be important although not vital components of authority, the quest for them should not be allowed to overawe all other means employed in pursuit of the policy objective.

In fact, rather than emanating from legitimacy/popularity, a sense of authority often emanates from military pre-eminence. The British irregular warfare theorist Charles Callwell was clear about the significance of this: 'Prestige is everything in such warfare.'[12] To this end, during the successful British COIN campaign in Dhofar, military force was used 'to focus their [local population] minds. The population had to be convinced of the power of the government and of the ability of the security forces to inflict punishment if support and assistance is extended to the rebels.'[13] Similarly, Julian Paget, in the classic work *Counter-Insurgency Campaigning*, concludes that in order to win the support of the local population, 'the Government must demonstrate its determination and its ability to defeat the insurgents'.[14] Steven Metz concurs: '[I]t is less an assessment of a preferred future that drives insurgents or insurgent supporters than an assessment of who will prevail – the insurgents or the regime.'[15] Thus, being the most obviously successful of the belligerents in a conflict will inspire support, or at least acquiescence from the local population. Equally, it may deter those contemplating adding their active support to the insurgents.

At a conceptual level, this analysis raises a range of difficult challenges. If war is a political animal, then surely political solutions are the means to ensure lasting stability. From this perspective, military force primarily has value by providing a secure environment for political and social developments. However, such a reading misunderstands the Clausewitzian theory of war. For Clausewitz, war is not an activity in support of politics; it is politics. Politics, it will be remembered, is primarily concerned with power (the ability to influence others). Whether that power comes from peaceful means or violent methods is, at one level, irrelevant. In an insurgency power is exercised through both violent and non-violent means. Between these two categories there is no real hierarchy, as each situation is unique and requires a different blend. However, it will be remembered that Wylie convincingly claimed that control is

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exercised by the 'man on the scene with a gun'. While control can of course be exercised by non-violent means, Wylie's theory cannot so easily be dispensed with. What does this all mean for COIN? Essentially, it means that neutralisation of the enemy's military forces is an essential political action, because it reduces their power. In the same way, gaining public support for government-backed development projects also reduces the relative power of the insurgents.

The power to hurt in COIN

It may be something of a cliché to discuss COIN as being characterised by the 'carrot and stick' approach. Nonetheless, this phrase does reflect the key elements of a campaign. However, in recent years western powers appear to have increasingly focused on the carrot and underestimated the significance of the stick. This particular approach may reflect social attitudes as well as the misplaced belief that success emanates from being popular with the public. This creates something of a problem, as identified by Major General Robert H. Scales: 'Non-Western enemies understand Western military vulnerabilities: aversion to casualties and collateral damage, sensitivity to domestic and world opinion.'[16]

Such attitudes to the role of the stick (power to hurt) appear to reflect cultural and social norms rather than being based on available historical evidence. Despite his claim to be working from the historical record, Lynn is at variance with much of the past practice of COIN when he states: 'Morality should guide us.'[17] In fact, however unpalatable the historical evidence may be, it suggests that use of the stick against local populations can produce positive results. As Colin S. Gray notes,

> The winning of 'hearts and minds' may be a superior approach to quelling irregulars, but official, or extra-official but officially condoned, military and police terror is swifter and can be effective. The proposition that repression never succeeds is, unfortunately, a myth. Half-hearted repression conducted by self-doubting persons of liberal conscience certainly does not work.[18]

In many respects, these thoughts open up a key debate on the nature of war, and in particular whether or not it has its own internal logic that is beyond the influence of culture. As noted in the Introduction to this work, Anthony Coates can claim that: '[W]ar is not a natural necessity, driven by its own internal and unchanging logic, but a cultural and normative reality, for if culture is a prime determinant of war, then so too is morality.'[19] However, war does have its own internal nature, and that nature, among other things, is by definition competitive, violent, and acts in the service of policy. Thus, if one treats cultural and moral concerns as the prime consideration in war, then one may cede the advantage and initiative to an enemy who is in harmony with the nature of war. An example of this is the Battle of Chaeronea in 338 BC, at which Macedonia defeated the Greek city states to establish hegemony over the Greek world. To use Plato's distinction, the Greek city states facing Macedonia thought they were engaged in a conflict of 'discord', in which the conduct and violence of operations is moderated among similarly minded foes. However, Macedonia waged, again in Plato's

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terms, 'war', in which the conduct of operations is far more total. The result of this cultural, and therefore operational mismatch was a crushing victory for Macedonia. Indeed, the victory was shockingly brutal for the Greeks, and resulted in the death of 1000 Athenians and the slaughter of the Theban Sacred Band. The culturally inspired quasi-formulaic approach to war of the Greek city states was violently brushed aside by a Macedonian army operating in tune with the nature of war.

One can also challenge Coates' position on the basis that at times strategy may call for an approach that is at variance with one's cultural and moral preferences. The deliberate firebombing of German civilians in the Second World War was perceived as a necessary ingredient of victory against Nazi Germany, yet it would be difficult to argue that this reflected a cultural preference of British and American society. Indeed, in an attempt to prove the significance of culture, with reference to one's vision of the enemy, Coates actually distinguishes the American approach to the war against Germany (discord) from its approach to the war against the Japanese (war). He claims that an American preference for precision bombing in Germany reflects American cultural attitudes to the Germans.[20] However, the use of the term precision bombing to describe the US bombing campaign over Germany is something of a misnomer. As a result of the technological limitations of the time, precision bombing usually, and knowingly, resulted in massive civilian casualties.

To illustrate the utility of the power to hurt in COIN, we can look to a host of historical case studies. For example, in Bactria and Sogdiana Alexander was able to quell resistance to his rule partly through a brutal campaign against the local population. This campaign included economic devastation of the rebellious regions. More recently, in their analysis of the British effort in the Boer War, which is regarded as a 'sophisticated pacification strategy', Ian F. W. Beckett and John Pimlott conclude: 'The Boers' support was also totally eroded by the incarceration of their women and children in concentration camps and the systematic destruction of their farms, crops and livestock.'[21] Similarly, in 1864, the Navajo Indians surrendered in large numbers to the US Army. This capitulation was due to the combined effects of the attrition of their warriors and economic deprivation inflicted by their enemy. In fact, Colonel Kit Carson, who led the campaign against the Navajos, reported that 'owing to the operations of my command they are in a complete state of starvation, and that many of their women and children have already died from this cause'. In another case, Robert M. Utley also cites the battle at Wounded Knee, in which 150 Indians were killed (including women and children), as the event that broke the will of the Sioux further to resist the reservation system. Indeed, from this period in American history we are provided with an excellent and concise summary of the relationship between the carrot and the stick. When discussing his peace policy towards the Indians, President Grant warned: 'Those who do not accept this policy will find the new administration ready for a sharp and severe war policy.'[22] Or, as the COIN theorist David Galula notes, the population should be cognisant of the warning: 'Stay neutral and peace will return to the area. Help the insurgent, and we will be obliged to carry on more military operations and thus inflict more destruction.'[23]

Thus, the conclusion to be drawn is that, rather than merely hoping that the population will voluntarily support the government, mainly as a result of its 'hearts and minds'

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policy, the power to hurt can act as a major influencing factor. The famous Briggs Plan in Malaya, which is often regarded as the model of a modern COIN campaign, also witnessed a considerable use of the stick against the local population. A notable element of the campaign was the resettlement of 400,000 people into secure 'new villages' as a way of isolating them from the insurgents. Importantly, as Newsinger comments: 'Resettlement was not accomplished freely, but by the application of overwhelming force in order to prevent any attempt at escape or resistance.'[24]

In order to understand the role the stick can play in COIN, we can do no better than to turn to Thomas C. Schelling's work on coercion. Schelling regarded the coercive use of force as one of the most potent means by which to achieve one's objectives: 'The power to hurt can be counted among the most impressive attributes of military force.'[25] By accepting, and using, the power to hurt in COIN, one can negate an advantage that Metz notes is currently held by the insurgents. This advantage manifests itself as the ability to seize the initiative, and is based on a greater flexibility and 'absence of ethical or legal constraints'.[26] The implications of this are evident in Iraq, where 'the insurgency has won support – or at least neutrality – through a combination of terror and robust propaganda'.[27] Not only is this recognised as an advantage held by the insurgents, there is a further recognition in the modern literature that a more aggressive approach to COIN can be effective: 'Regime after regime fighting determined insurgents has found that the most effective methods, sometimes the only effective methods, violate human and civil rights.' However, the author of these words, Metz, rightly also recognises that a brutal approach can sometimes be counterproductive. He cites the case of Slobodan Milošević's Serbian regime in its campaign in Kosovo against the KLA.[28]

This last point serves to illustrate the fact that in strategy context is everything. Thus, whether or not the power to hurt will prove effective is dependent on the context, as well as the judgement and performance of the strategist. The point to be made here is not that violent coercion will work on every occasion, but that it may be effective, and therefore should be on the strategic table. Thus, from a strategic perspective, one has to ask whether at times a greater emphasis on the power to hurt should be contemplated. The quest for strategic efficacy inevitably forces us to consider such a possibility.

It should be stressed that the citation of these historical examples should not be taken as a call for outright brutality against local populations. COIN, like strategy in general, calls for balance and judgement in the application of force. To this end, Julian Paget is correct when he argues that the stick must not be used without finesse. Rather, certain sections of the populace (whom Paget describes as active and willing supporters of the insurgents) may well be subjected to harsh punishment, perhaps being treated in the same manner as the insurgents themselves. In contrast, those who are either undecided in their loyalty, or support the insurgents out of fear, can be persuaded through collective forms of punishment such as fines, curfews and detentions.[29] Likewise, Callwell demonstrates an acute grasp of strategy in his analysis of how military operations against the population can contribute to success. He calls for a balance between clemency and firmness. In his discussion of how to come to grips with an irregular enemy who refuses to fight, Callwell notes that 'the regular troops are forced to resort to cattle lifting and village burning and that war assumes an aspect which may shock the humanitarian'. He continues, 'Still, there is a limit to the amount of licence in

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destruction which is expedient. … Expeditions to put down revolt are not put in motion merely to bring about a temporary cessation of hostility. Their purpose is to ensure a lasting peace.'[30]

Thus, we can conclude that, within a balanced campaign, punishments aimed at the civilian population, and in particular those willing to support the insurgents, can have a role to play. This can be seen in the success such measures enjoyed in the British campaign against the Malayan Communist Party (MCP). During the campaign thousands of people were detained without trial, others were deported from the country, and the death penalty was introduced for offences such as the possession of explosives. Newsinger concludes that these repressive measures were very successful in limiting the efficacy of the MCP.[31]

The military dimension in COIN

As noted earlier, a problem with much of the modern literature on COIN is that it underestimates the role of the military, and thus misunderstands the nature of strategy. For example, in an important 1965 article, *The Theory and Practice of Insurgency and Counterinsurgency*, Bernard B. Fall writes:

> the kill aspect, the military aspect, definitely always remained the minor aspect. The political, administrative, ideological aspect is the primary aspect. Everybody, of course, by definition, will seek a military solution to the insurgency problem, whereas by its very nature, the insurgency problem is military only in a secondary sense, and political, ideological, and administrative in a primary sense.[32]

Contemporary writers are also guilty of this error. Commenting on Iraq, Andrew Krepinevich calls for an approach 'that focuses on providing security to Iraqis rather than hunting down insurgents'.[33] The most obvious immediate response to Krepinevich's comment is: 'Why not do both?'

While not wholly inaccurate, these comments tell only half the story. In the first instance, and as noted earlier, to disassociate the military from the political is to fundamentally misunderstand the nature of strategy. Military force is not an alternative to political action; it is political action, albeit with the addition of violence. Thus, military action taken against either the insurgents or their supporters is an act in support of the political objective. In addition, there is a danger that to take these views too seriously could lead one to assume that COIN is not war. Although non-violent political, social and economic programmes may be an important element of a COIN campaign, military action against the insurgents and their supporters may also be central. Such a thought is clearly in line with Clausewitz's central point that 'it is evident that destruction of the enemy forces is always the superior, more effective means, with which others cannot compete'.[34] In this sense, the insurgents have to be defeated. Kitson notes that 'because the very fact that a state of insurgency exists implies that violence is involved which will have to be countered to some extent at least by the use of force'.[35] At the very least, insurgents have to be kept under sufficient military pressure to prevent their gaining the initiative. In fact, Henriksen notes that in Vietnam the scale of US military operations

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was successful in preventing the Viet Cong from establishing proto-states in the South, from where they could spread their insurgency.[36] Although South Vietnam was eventually lost to the Communists, it was not taken by the insurgent forces of the Viet Cong, but rather to the regular North Vietnamese Army (NVA).

It is interesting that much of the literature on insurgency makes the claim that one of the most important considerations for the insurgents is not to lose the war but merely to keep it ticking over, hopefully to a point at which the government forces or their allies lose the will to continue. Yet, this same literature does not draw the obvious conclusion from this thought: that from a COIN perspective the objective therefore has to be to ensure that the insurgents do lose the war. It has been recognised that one of the main contributions to British success in Malaya was the fact that the insurgents were 'remorselessly ground down by attrition'.[37] Likewise, in Vietnam the Viet Cong 'were militarily crushed in the 1968 Tet Offensive and saw their political underground decimated by the Phoenix Program'.[38] The conclusion from this evidence seems to be clear: insurgents must be constantly harassed and ground down through attrition. Unfortunately, much modern thinking on COIN assumes that major and/or prolonged military operations against the insurgents are counterproductive, especially because they may hinder the hearts and minds effort. Bruce Hoffman notes that in Iraq the USMC has learnt to regard heavy weapons as a last resort, precisely because they believe their use undermines the hearts and minds campaign.[39] History would suggest that this is not necessarily the case.

In this respect, it is therefore a mistake in a COIN campaign to merely attempt to 'contain' the insurgents while the political process is developed. Despite the inherent problems of a containment strategy, such an approach is still being advocated in the modern literature: 'In liberation insurgencies, though, a strategy of victory is a very long shot, hence a strategy of containment is the more logical one.'[40] This advice is contrary to much of the historical evidence. In Mozambique, the initial Portuguese response was limited, and merely tried to contain the insurgency. All that this approach achieved was to cede the initiative to the insurgents. In this respect, Westerfall makes the observation that an early, forceful response by the government can seriously retard the development of an insurgency.[41] After this initial mistake the Portuguese did go on the offensive with Operation Gordian Knot. This broad offensive involved 35,000 troops and made use of artillery and air power to engage in heavy bombardments of guerrilla bases. The initial success of Gordian Knot was eventually undermined by the political leadership in Lisbon, which, concerned with growing casualty rates, began to restrict the campaign.

Thus, it is evident that certain self-imposed restraints in the conduct of a COIN campaign can be problematic. During its campaigns in Africa, Portugal refused to pursue guerrillas into neighbouring states such as Zaire, Congo and Zambia.[42] The USA made a similar blunder in Vietnam by not engaging in substantial ground operations in North Vietnam, Laos or Cambodia. Indeed, Harry G. Summers laments the missed opportunities that this policy decision resulted in. Commenting on the period following the US success in the Ia Drang Valley in 1965, Summers concludes:

> Now was the time for the United States to take the offensive. Although in theory the best route to victory would have been a strategic offensive against North

> Vietnam, such action was not in line with US strategic policy which called for the containment rather than the destruction of communist power.

The result of this policy left the USA in 'an untenable strategic position where the enemy's territory was inviolable while the territory of our ally was open to attack'.[43] Such a policy creates the significant problem of permitting one's opponents the luxury of external sanctuaries, from which they can prepare and launch raids. Henriksen makes clear the significance of external sanctuaries in relation to the Portuguese war in Mozambique: 'Across the border sanctuaries were of prime importance. … Contiguous states furnished training sites, conduits for armaments, and havens from all but a few Portuguese retaliatory strikes.'[44]

External sanctuaries are often tolerated because the state conducting the COIN campaign does not want to escalate the conflict. However, this again may partly reflect the fact that states increasingly do not regard COIN campaigns as war proper. Thus, they place limits on their actions that are out of kilter with the scale of the conflict and the approach of the enemy. This is perhaps most clearly evident in the US war in Vietnam. While the USA was waging a limited war, North Vietnam had a very different approach: 'Like us, Hanoi had failed to win the hearts and minds of the South Vietnamese peasantry. Unlike us, Hanoi's leaders were able to compensate for this failure by playing their trump card – they overwhelmed South Vietnam with a twenty-two division force.'[45] Such thoughts do not denigrate a more nuanced COIN approach; rather they merely show that the aggressive/offensive use of military operations may have a part to play in a conflict that is, partly, characterised as an insurgency. To reiterate, our present concept of COIN is too heavily weighted towards the carrot, and thereby underestimates the role of military force, either in its ability to defeat the insurgent forces or to coerce the population.

The character of military operations in COIN

So, if military force should play a more prominent role in COIN than is currently being advocated, how should it be applied? As Colin Gray notes, if access to the population is the key to success for insurgents, then the territory in which the majority of the population live will become the main battleground.[46] It is on this basis that US military strategy in Vietnam can be most heavily criticised. Andrew F. Krepinevich is damning in his critique of the US Army's approach against the VC. He claims that the chosen strategy of attrition, which led the USA to focus on the larger VC concentrations in the more remote areas of Vietnam, played into the hands of their opponents. Not only did this draw US forces away from areas of higher population, which left them more vulnerable to the VC; it also meant that large US search-and-destroy operations often failed to engage their more mobile and wily foes. Thus, the USA failed to effectively protect the population, and at the same time failed to attrite sufficient numbers of the enemy.[47]

In this respect, the evidence from Vietnam would suggest that large sweeps designed to engage insurgents are largely ineffective as a use of force in a COIN campaign. However, while this may be generally true, there are examples where large-scale oper-

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ations have produced some successes. As noted in relation to Operation Gordian Knot, success can sometimes be achieved via large-scale offensives. Another example of this from the Portuguese case was Operation Attila in 1972, which eliminated half of the guerrillas in Eastern Angola.[48]

Despite the partial success of the large Portuguese operations, for the most part, a successful COIN campaign is based around two complementary types of operation. On the one hand, by committing one's forces to population protection, the insurgents are often forced to fight in order to get at the population. On the other hand, aggressive, mobile patrols by small units, who employ some of the guerrillas' own tactics against them, should be utilised on raids against the insurgents. This last type of operation is designed to seize and maintain the initiative against the insurgents, to keep them on their toes, and to slowly reduce their capabilities through attrition and attacks against their supplies and bases. Hopefully, over time it will also degrade their will.

Evidence to support this approach is widespread. Having previously defeated the Persian army in large regular battles, Alexander the Great reorganised his forces into smaller mobile detachments. Similarly, in the successful COIN campaign in the Philippines government forces were based around small, self-sufficient patrols that constantly harassed the guerrillas. Likewise, the 1870 campaign by the US 5th Cavalry in Arizona is instructive of how to use forces against a mobile insurgent foe:

> The campaigns in Arizona did not owe their success to any particular Waterloo-like victory, as much as they did to the covering of a great deal of ground by a comparatively small number of men, permitting the Indians no rest and rendering any and every hiding place insecure.

Despite such successes, in general the US Army lacked imagination in its operations against the Indians. Too often the army relied on cumbersome regular formations that were limited in their mobility by their logistics. Where the larger operations did bring some success was through the pressure they could exert on the Indian population, who were, of course, less mobile than the warriors:

> [T]he army set forth to find the enemy in their winter camps, to kill or drive them from their lodges, to destroy their ponies, food, and shelter, and to hound them mercilessly across a frigid landscape until they gave up.[49]

We are left with a picture in which, depending on the context, small, mobile formations that constantly harass the enemy are best suited to COIN campaigns. However, as the Portuguese case reveals, large-scale operations can also have their place, so long as the enemy has bases or troop concentrations that can be identified and attacked.

However important military operations against the insurgents are, a successful COIN campaign does require other elements. Of particular significance is the isolation of the population from the insurgents. With such a condition in place, the population can be protected against intimidation from the insurgents. This, in turn, creates conditions in which social, economic and political programmes, designed to win the support of the population, can be given the time they require to take effect. Again, the classic example

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of this was Malaya, where 400,000 Chinese squatters were relocated into secured villages, and thereby isolated from the insurgents. Such actions not only protect the population from the insurgents, but also deprive said insurgents from sources of supply, intelligence and recruits. However, resettlement is not always successful. In Angola, the Portuguese resettled one million people (20 per cent of the population). However, the new villages lacked adequate security, and thus were infiltrated by the guerrillas. In addition, they were badly sited and had poor facilities.[50] When such conditions exist, the resettlement programme can become counterproductive. Rather than limit support for the insurgency, the exact opposite may occur. Indeed, the population can turn against the government if they feel that they are being offered inadequate protection from the insurgents. This became a problem for the Portuguese in Mozambique, who struggled to prevent the indiscriminate use of landmines by the insurgents.[51] The British had a similar problem during the American War of Independence. Loyalists were often reluctant to publicly declare their support for the existing order, since they often could not rely on the presence of British troops to protect them from patriot militia groups.

Conclusion

Having considered COIN campaigns from a range of theoretical perspectives and historical periods, what conclusions can we draw? In the first instance, it is important to note that irregular forms of warfare are still subject to the constant nature of strategy. In this sense, military force is still a tool of policy; and the particular policy in question should dictate how the force be used. Second, regardless of which historical period one is considering, the local population represent the key to COIN. If the locals continue to support the insurgents (including providing intelligence, supplies and recruits) then the government actor will struggle to defeat the insurgency.

Although much of the literature and practice (historical and modern) on COIN concurs with such an emphasis on the centrality of the population, differences begin to appear over how to maintain control over the population. At one end of the spectrum, an unsupportive population can be massacred to the point at which they cease to pose a viable support base for the insurgents. A similar effect can be achieved in a more humane fashion, by simply relocating the local populace in large numbers to a location that isolates them from the insurgents. If neither of these methods is desirable or possible, the locals must be persuaded to cease supporting the insurgency. As noted, the modern perspective on COIN seeks to achieve this through a competition in popularity with the insurgents. Thus, through economic, political and social actions, the government actor can hope to win the support of the locals. Alternatively, a more coercive approach can be taken. In this sense, the insurgents and government may engage in a competition in intimidation. Those more able to inflict pain on the population may gain their begrudging allegiance.

A more effective and acceptable approach can be constructed from the two methods described here. At the risk of being predictable, this third option can be described as the carrot and stick approach, albeit one that places more emphasis on the stick than has been common in recent campaigns. History clearly reveals that people can be coerced into supporting a government through the fear of reprisals. However, this approach does

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not have to rely on outright brutality. Indeed, the punishments envisaged may take the form of detentions, fines and curfews. In combination with 'good works', this approach provides the population with a clear choice: support for the government brings benefits, whereas opposition leads only to punishments. It is also important to note that the power to hurt can be overused, to the point at which it ceases to provide the desired effect. If acts of reprisals become too random and frequent, the population may feel that their acquiescence will not save them from brutality. In such circumstances, they may resist since they feel that their slaughter is not dependent on their behaviour. This error can be seen in Alexander's campaign in India.

Of course, in order for the population to be controlled, the government must ensure that it limits the influence of the insurgents. It is at this point that military and security operations play their vital part. From the security perspective, many measures need to be taken. These include the creation of secure areas for the population and perhaps an effective ID system, by which the identity of individuals can be verified. Of critical importance is the recognition that COIN is still war, in which the enemy has to be defeated. By bringing the enemy to battle, he can be defeated materially and psychologically. This truism raises the age-old problem of how to bring an irregular foe to battle. As noted here, modern evidence suggests that generally the most inefficient way of bringing the enemy to battle is through large-scale search-and-destroy or sweep operations. Under such conditions, an insurgent foe can remain elusive and deny a regular foe the engagements it requires. A more effective approach therefore seems to be focused around protection of the population. By using one's forces for protection of the population, the regular force compels the insurgents to come to them. However, it is important also to emphasise the need to go on the offensive against the insurgents. Merely waiting on the defensive would simply cede the initiative to the enemy. This is where small, mobile detachments are invaluable. Such forces should be employed in deep raids against insurgent forces and their bases and sanctuaries. The war must be taken to the insurgents. This not only serves the objective of defeating the foe in a military sense, but also helps to engender an image of success for the government. As noted, COIN should be regarded as a competition in authority, rather than a competition in legitimacy and/or popularity. What seems absolutely clear from the historical evidence is that at all costs one should avoid the temptation to merely contain the insurgency. Also, one should not allow the insurgents the luxury of external sanctuaries. The enemy must be pursued across borders.

The lessons outlined in this section on COIN form a general picture of how best to conduct this type of conflict. However, each insurgency is unique and calls for a response appropriate to the situation. And, as strategy is the art of the possible, certain actions will be out of the question simply on political grounds. However, COIN operations also cannot be out of kilter with the nature of strategy or the internal logic of COIN itself. Thus, although at times there may be social, cultural and moral opposition to the kind of COIN campaign advocated here, from a strategic perspective such an approach has merit. This is not to suggest that modern western armies should engage in the wholesale slaughter of local populations. Rather, it is merely to note that the power to hurt must be in play, whether to be threatened or used in some manner. Merely being popular does not make COIN campaigns successful; being more successful and powerful than the enemy is a key element of achieving one's objective.

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As noted in the introduction to this work, strategy is a complex, multidimensional activity. However, as Clausewitz wisely observes, it is a mistake to attempt to counteract this complexity with complex operations. Simple actions are often the best approach.[52] Unfortunately, modern COIN theory is often overly complex and demands overly complex tasks for the strategist. Note this comment on the Coalition's responsibilities in Iraq. Aside from combat operations: 'Part of the Coalition's sociological mission is instantiating important concepts into the Iraqi collective conscious, including mercy, restraint, proportional force, and just war.'[53]

It seems that the west is left with three possible approaches to how it conducts COIN campaigns: first, to eschew the power to hurt, and therefore accept that modern COIN potentially remains a more complicated and difficult undertaking. Such an approach does have the positive outcome that it is more socially and politically acceptable. Second, to accept the words of General Sherman that war is hell, and thereby adopt an approach that ignores the ethical dimension to COIN and thus uses the power to hurt without constraints, except those imposed by strategy. The third approach, however, may represent a compromise between the first two. In this third option, we accept the role of the power to hurt, but use it in a modern guise. Thus, local populations can be punished and coerced, but are done so in ways that stop short of slaughter, torture and executions. In such a situation, punishments may take the form of detention without trial, fines and other sanctions.

Above all, what seems clear from the historical and theoretical evidence is that COIN must be considered as war. If this position is taken, then the nature of war must be the context within which a COIN campaign is conducted. Thus, the struggle between the insurgents and government forces is characterised by competitive, violent behaviour in the service of policy objectives. Therefore, in such an environment, alongside social and economic acts designed to win the support of the local populous, the power to hurt and offensive military operations must play a significant part.

Key points

1. Modern COIN performance has been poor.
2. Insurgency seeks to achieve its objectives primarily through protracted, irregular operations, designed to disrupt and weaken the government.
3. COIN has its own strategic logic.
4. COIN is an act of war, in which the enemy must be defeated.
5. The local population are the key to success, and they may have to be coerced.

Questions

1. **Why has modern COIN been so difficult?**
2. **How does insurgency function as an instrument of strategy?**
3. **Should COIN be considered as an act of war?**
4. **What are the key characteristics of a successful COIN campaign?**

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Conclusion: patterns in grand strategy today

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What, then, are the patterns in grand strategy today? A thorough answer to that question would require volumes. What remains of this book will sketch the outlines of a response – and reflect on how studying the contemporary grand strategic environment can help us to understand the broader topic of twenty-first-century strategy. As of 2010 relations among the great powers in world politics remain protean – capable of assuming a variety of forms.

Geography continues to exert a relatively consistent influence on strategy over relatively long periods of time. The Horn of Africa, to pick but one example, is a watery crossroads connecting Asia, Europe, southeast Africa and the Middle East. Therefore, it is invaluable to any power in any one of those areas that wishes to act beyond its immediate neighbourhood. The fifteenth-century Chinese admiral Zheng He would not have been surprised to learn that his twenty-first-century successor Yin Zhuo has expressed an interest in acquiring a naval base on the Gulf of Aden.[1]

Thus, the scholar C. Dale Walton has revived geopolitics for the present day.[2] Walton notes that a variety of new powers are rising in international politics. Many of these are in parts of the world that remained relatively undeveloped during the great struggles of the twentieth century. As new powers arranged in new geographical patterns seek to consolidate their growing influence, Walton suggests that they will turn to innovative forms of military technology and innovative ways of using it. This will precipitate both future revolutions in military affairs and a more comprehensive 'revolution in strategic perspective'.

Other geopolitical analysts may offer alternative interpretations. Meanwhile, as Chapter 6 noted, strategists must pay particular attention to the political dimension of geopolitical analysis. Those who wish to understand contemporary strategy will wish to know what goals the political actors of the twenty-first century might seek, and how they might organise themselves to achieve them. The answers to such questions remain ambiguous. Whereas the strategic relevance of geography remains stable, the strategic relevance of political thought appears to have lost definition.

Fewer than 30 years ago, strategists had to consider the possibility that conflict between liberal states and Communist states might lead to nuclear war. Thankfully, the ideological disputes between twenty-first-century powers remain less apocalyptic. One must acknowledge that there are exceptions to this statement. Whether or not Iran's president Mahmoud Ahmadinejad actually vowed to 'wipe Israel off the map', as many western journalists reported, his speeches are undoubtedly fiery. Terrorist leaders make extreme threats as a matter of course.

Some analysts argue that contemporary terrorists are becoming increasingly willing to act on such statements. The increasing possibility that radicals may obtain so-called weapons of mass destruction makes it unwise to overlook their rhetoric. Nevertheless, even with nuclear weapons, groups such as Al Qaeda will have to make considerable progress with their political programmes before they can hope to overthrow more traditional political institutions such as states. Such groups will find this impossible unless they act in concert with powerful states, or unless their enemies mismanage the situation in some historically unprecedented way.

For these reasons, strategists are justified in returning to the subject of politics among economically and militarily developed state governments. By historical standards, as noted earlier, disputes among such regimes remain muted. Since the end of the Cold War, a series of political leaders have suggested that powerful states might take advantage of this consensus to achieve shared strategic goals. One obvious shared goal might be that of eradicating the international terrorist organisations and other so-called rogues who continue to fight against the existing order.

States have, indeed, united for such purposes on multiple occasions. In 1990–91, for instance, the United Nations organised a coalition to turn back Baathist Iraq's invasion of Kuwait. In 2001 the United States achieved sweeping support for an international campaign against Al Qaeda and its affiliates. This included support for the invasion of Afghanistan. The European Union has quietly established a common military force for peacekeeping and other EU-sanctioned operations.

Other calls for international intervention, however, have provoked more controversy. When members of the North Atlantic Treaty Organisation resolved to intervene in Kosovo in 1999, they found that they had to override the United Nations in order to do so. Britain, America and a coalition of supporting states defied the UN even more flagrantly by invading Iraq in 2003. The principle of global cooperation to achieve global strategic goals, in other words, has increasingly given way to the more historically familiar principle of states calling on available allies to carry out their own policies.

Political arguments for united international action, in short, have seldom exerted much influence for long. Governments have found fewer truly common goals than many hoped. When states have found that their objectives conflict, most leaders have continued the time-honoured practise of acting independently in what they perceive as their own interests. Moreover, the most prominent military actions of the early twenty-first century proved longer, costlier and more complex than their supporters had hoped. Influential American advocates of the 2003 invasion of Iraq, for instance, have publicly suggested that the war was a mistake.

This has produced a situation in which leaders of the most powerful states may find it difficult to attract support for strategic action of any kind, whether from other countries, or even from within their own governments. The leaders of certain states, however, seem less chastened than others. Russia and the People's Republic of China, for instance, remain relatively active and relatively frank about it. The author has explored these developments and their implications in his book *Emerging Conflicts of Principle: International Relations and the Clash between Cosmopolitanism and Republicanism*.

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The economic crisis that became apparent in 2008 seems likely to reinforce these trends. One of the reasons why citizens and policymakers in Britain, the United States, and other militarily active countries have become embittered about their recent wars is that those wars have become increasingly expensive. Moreover, the experience of these wars indicates that if these countries hope to carry out similar operations more satisfactorily in the future, they will have to invest in such capital-intensive military resources as large ground forces capable of establishing order in occupied territories. If these countries also wish to maintain the capability to conduct other types of campaign, perhaps against better armed opponents, they will have to allocate even greater sums, and if they wish to take full advantage of emerging technology, they will have to spend yet more.

The economic crisis need not stop these states making such investments. By the standards of the past 50 years, Britain, America and most other developed countries spend a relatively small percentage of their gross domestic output on their armed forces. They could spend more if they chose. Nevertheless, doing so will require cuts in other areas, and political leaders who have already become dubious about active military policies for other reasons will be reluctant to call for such sacrifices. News of unfolding financial disasters also distracts policymakers from longer term issues of all kinds.

In purely material terms, Russia and the PRC may be more vulnerable to economic decline than the western powers. Beijing has announced that it will have no choice but to slow the rate at which it expands its military budget, and Russian Defence Minister Anatoly Serdyukov has warned that he may require additional funds in order to continue his country's planned military modernisation.[3] These very facts, however, draw attention to the fact that both countries remain committed to upgrading their armed forces and both are willing to spend more despite financial difficulties. As of 2010 the western powers enjoy numerous advantages in terms of immediate military capabilities, but others have considerable potential to alter the balance of power over the longer term.

This returns us to the subject of political ideas. The People's Republic of China remains officially committed to Marxism-Leninism. Marx and Lenin called for the overthrow of all capitalist societies. Although Russia no longer presents itself as Marxist-Leninist, many of its current leaders began their political careers during the period when it did, and their 2008 campaign against Georgia is merely a recent example to suggest that they have not entirely abandoned their Soviet-era spirit of assertiveness. None of this dooms Russia, the PRC and the west to become mortal enemies, but all of it suggests that they may expect to disagree regularly over fundamental issues.

Do such differences matter? Do they matter as much as they might have mattered in earlier centuries? Or has some development of the past 20 or 30 years – economic globalisation, perhaps – permanently transformed their significance? The way in which we answer these questions must affect the way in which we understand virtually all other issues in twenty-first-century strategy.

For as long as we can rely on the great powers to remain at peace, strategy will remain one important political concern among many. States waged war throughout the first decade of the twenty-first century, and they will continue to do so. Terrorists,

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pirates and other violent non-state actors will remain active. All the issues discussed throughout this book will remain relevant. Nevertheless, responsible political leaders will not necessarily give them the highest priority. Such goals as hastening economic recovery may be equally important.

If, by way of contrast, Colin Gray is right to suggest that we are living at the beginning of 'another bloody century', then we must anticipate a moment when strategy once again becomes a matter of life and death for every one of us.[4] Historical episodes such as Frederick William I's grand strategic ruses of the eighteenth century remind us that we may not recognise the rise of powerful opponents as early as we might hope. For both western powers and their potential opponents, then, the strategic challenge of the next decade may be that of securing the resources they may need to address sharper challenges later in the century. This book has sought to detail what these resources might be.

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